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THE CONTINUING CHALLENGE OF BREAST CANCER*

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THIS REPORT is a survey of some contributions of the last 15 years which have added to our knowledge and stimulated our thinking about breast cancer and its control. The following cardinal features of this problem will be discussed with particular reference to their significance to the physician in general practice:

1. National and provincial statistics.
2. An educational program.
3. Aspiration cytology diagnosis.
4. The concept of the "good cancer" and the "bad cancer".
5. The effect of grading on prognosis.
6. The incidence of internal mammary spread.
7. Super-radical surgery.
8. The rigid selection of cases for radical surgery.
9. Simple mastectomy plus irradiation.
10. Newer aspects of irradiation.
11. Hormonal therapy and its ramifications.

National and Provincial Statistics

Based on available statistical data for Ontario for the years 1955-1958, deaths from breast cancer averaged 713 annually. Computed from natural incidence surveys, about 1600 new cases of breast cancer will develop in this province this year. *It is the leading single cause of death in females between the ages of 35 and 44,* second between 45 and 54 and third at ages 55 to 64.[1]

Phillips and Owchar[2] in a nation-wide survey covering 1941-1953 report no significant change in the mortality rate from cancer of the breast during this period. Fortunately, adjusting for age there is no increase in the incidence of cancer in this site. The breast is the commonest site of cancer in women; one in 20 will develop this disease.

Such are the cold stark facts which should stir us all into an active whole-hearted co-operation with an anxious patient, the public, the specialty groups of our profession, and provincial agencies such as the Ontario Cancer Foundation and the Canadian Cancer Society dedicated to assist us in the task of cancer control.

An Educational Program

Since the creation of the Canadian Cancer Society, through efforts of the Canadian Medical Association in 1937, a magnificent piece of work has been done in raising funds for research and in service to the needy. The educational program has been broad in its spectrum and protracted, but superficial and spotty. Nevertheless, it has caused an increased public awareness of the cancer problem and a significant response to symptoms, particularly in the alert, young, cancer age-group. Such a response may well be reflected in the Ontario report of Sellers[3] of a drop in the female cancer death rate (all sites, adjusted for age) per 100,000 population from 147 in 1936 to 125 in 1957.

For the specific site of breast the effectiveness of the educational program has been sluggish. Data obtained from Ontario Cancer Foundation Clinics reveal 24.4% for Stage 1 cases in the 1943-1947 period and only 26.6% in a similar period ten years later, 1953-1957.[4] The London Clinic had 22.5% for Stage 1 in 1938, and 31.4% 20 years later.[5] Cancer is not a reportable disease in Ontario; therefore, statistics derived only from the Foundation's Clinics, to which the early case may not be referred, do not show necessarily the true overall picture of patient response to education. Handy and Gerhardt[6] record from upstate New York, where cancer is a reportable disease, that the figure for early breast cancer was unchanged in 1957 over 1947, 25.6% versus 25.9% respectively, and this despite a 26% increase of early stage diagnosis for all sites in females.

These disappointing figures point up the fact that at least the women of Ontario (1) must be specifically *educated* in how to detect a breast abnormality and (2) *motivated* to consult their doctor immediately thereafter. There is no better way to accomplish this on a mass basis than through the American Cancer Society's excellent film "Breast Self-Examination", which was shown to large audiences during April 1960, and which is available through 78 units and 170 branches of the Ontario Division of the Canadian Cancer Society. We can take pride in the fact that within

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a year the Society will have completed its province-wide organization in Ontario, thereby, with the physicians' help, extending its service and education to each and every metropolis and hamlet.

Aspiration Cytology Diagnosis

Obtaining a plug of tissue through a large bore needle has been an accepted practice for many years. It is somewhat bothersome, esthetically, to use a No. 13- or even 18-gauge needle for this purpose, and only too often the material has proved unsatisfactory. Accordingly, with confidence in the diagnostic accuracy of cytology being established and strengthened year by year, we undertook a study of 100 patients with a breast lump which proved subsequently to be histologically malignant, and were able to diagnose 92% by cytological smear.

Our pathologist's report of a positive smear from a solid lump in the breast means cancer, and frozen section in my own personal surgical series has been practically eliminated. It is true that a false positive is possible, but this becomes increasingly rare with experience. False negative smears were reported in 8%, perhaps owing to a geographical miss or the inability of the 22-gauge needle to penetrate a very scirrhous tumour. In our original series repeat aspiration was required in 18 cases.

In reporting this study[7] to the Seventh International Cancer Congress, 1958, in England, we cautioned as follows: "The successful interpretation and clinical application of the cytology of solid tumours depends, in large measure, on four principal factors, without which the patient could be the loser:

"1. The experience of the pathologist and clinician.
"2. The attitude of acquiring perfection.
"3. The challenge of participating in and exploring the cytological diagnostic field to its limit.
"4. The clinician's ability and willingness to accept the responsibility for positive, negative, and equivocal reports; in particular the latter two."

We employ a 50-c.c. Luer-Lok syringe and a 22-gauge needle. The skin is sterilized and the lump immobilized with the left hand. Without anesthetic the needle penetrates skin and fat and engages the firm edge of the growth. Suction is then applied, but not until then, for the needle lumen is small and we are striving to obtain tissue fluid only from the tumour. The needle is guided through the suspicious tissue in two or three directions. All suction is then released and the needle withdrawn, thereby preventing loss of the minute drop into the lumen of the syringe. The tissue fluid within the needle is then expressed and smeared on an albuminized slide and immersed while wet in a fixative containing 95% alcohol and 1% glacial acetic acid. It is stained by hematoxylin and eosin. Should a tiny plug be obtained, as is often the case, it is fixed in formaldehyde, blocked in paraffin and studied histologically. The application of this development is of major significance.

The Concept of the "Good Cancer" and the "Bad Cancer"

One cannot, in a survey of this type, overlook the statistical efforts of McKinnon[8] to discredit the value of treatment and early diagnosis in controlling death from breast cancer. He has done a service in re-emphasizing the wide variation in degrees of malignancy, which should make us think before we cut, for it is true that in a certain number, either from a lack of host resistance or virulence of tumour, or both, death appears to be predetermined. On the other hand, with the combination of a very low-grade tumour and presumed good host resistance a cancer may be present for a year or longer and yet remain localized and the patient have a good prognosis.

McKinnon rejects the evidence that "treatment of breast cancer prevents death in a very considerable proportion of cases". Fortunately, in this country his deductions regarding the importance of early diagnosis in prognosis have been brushed aside, for optimism and service are not usually willing to wait because of a statistical interpretation. Something must be happening: in 1878 Billroth had a three-year clinical cure rate of 4.7% with 82% local recurrences; Haagensen[9] reports 87.1% survival in cases without axillary node involvement. Watson[10] records a Saskatchewan figure of 48.3% for five-year survival of all stages in a 1944-1949 series. Ash, Peters and Delarue[11] list 81% for five-year survival of patients with Stage 1. And in Ontario the mortality was 713 per year as opposed to an anticipated 1600 new cases. How does one explain this?

The Effect of Grading on Prognosis

Fifteen years ago in discussing "the applied value of histopathology in today's cancer clinic", the author laboured the importance of tumour grade in prognosis and selection of cases for treatment: and as an example on a theoretical basis suggested that we were not justified in subjecting the patient with an anaplastic bronchogenic or esophageal cancer to surgery. Hultberg has recently related that surgery at the Radiumhemmet in Stockholm had failed in the treatment of anaplastic and oat-cell bronchogenic cancer and that these now were being treated by a combination of cobalt irradiation and chemotherapy. The implied significance of the term "biologically inoperable" is slowly being recognized.

The relationship between the intrinsic growth potential of the cancer cell and host resistance has not as yet been clarified immunologically. It may be that at the very outset, when neoplastic change is initiated, the biological activity of the cancer is actually determined by the degree of

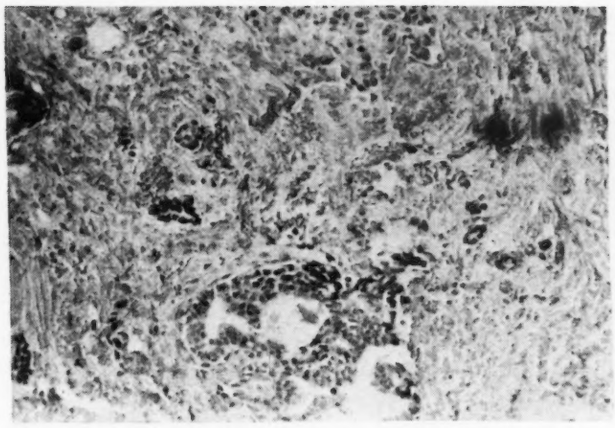

Fig. 1.—Breast tumour of low-grade malignancy. Grade 1 carcinoma with well-marked tubule formation.

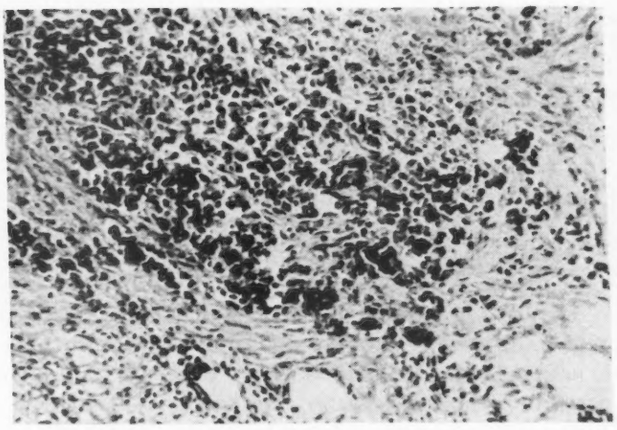

Fig. 2.—Breast tumour of high-grade malignancy (Grade 4), showing absence of tubules, marked anaplasia, pleomorphism and hyperchromatic nuclei.

host resistance present at that time. This nebulous phenomenon called host resistance cannot be detected or measured in the early clinical stages of malignant disease, but different degrees of cellular malignancy certainly can be revealed through the microscope (Figs. 1 and 2).

Bloom and Richardson[12] in a series of 1409 cases of breast cancer have studied meticulously the relationship of tumour grade to survival. Roughly one-third of the cases were treated by radical surgery alone and the rest by radical surgery and irradiation. Three microscopic grades of malignancy were defined: low (grade 1), intermediate (grade 2) and high (grade 3).

The five-year survivals without node involvement were: grade 1, 86%; grade 2, 68%; and grade 3, 64%. With nodes invaded the five-year survivals were: grade 1, 66%; grade 2, 33%; and grade 3, 19%.

Haagensen and Stout[13] in a series of 1103 cases report figures which closely parallel those of Bloom and Richardson. Watson, using four grades in the Saskatchewan survey, showed a drop from 90.4% five-year survivors for grade 1 to 11.1% for grade 4.

We cannot deny the prognostic significance of grading. Furthermore, it is seen that even if patients with "bad cancers" (grade 3) are operated upon before metastases occur in nodes, the survival rate (five years) is increased from 19% to 64% (Bloom).

The Incidence of Internal Mammary Spread

The investigations of S. Handley earlier in this century at the Middlesex Hospital on the routes of spread of breast cancer focused our attention on the importance of the internal mammary lymphatic chain. His son R. Handley, following on in surgery at the same institution, has pursued the matter further, as have others, in particular Italian, Danish and American workers. The incidence reported by R. Handley,[14] whose series of 300 cases is the largest, is worthy of comment: 33.3% had no node involvement; 34% had only axillary nodes; and 32% had both axillary and internal mammary nodes. Without axillary involvement only 6.3% had internal mammary extension. Lesions in the outer half had both internal mammary and axillary invasion in 21%, while with the inner half and central lesions, 43% had both chains involved.

After five years 84% of the patients were well when no metastases had been present; 58% when only axillary glands had been affected; 4.8% when both chains had been invaded; and strangely enough 3 of 8 patients remained well when the internal mammary nodes alone were invaded.

Handley's attitude to such findings from the therapeutic point of view is to await the appraisal of results from centres elsewhere which are doing super-radical surgery. Haagensen's commendable clinical research viewpoint is that when the apical nodes or the first, second or third intercostal spaces show invasion the patient is beyond cure by surgery and should be managed basically by supervoltage irradiation.[15]

Super-radical Surgery

This should fall into the category of clinical research, and as such, extending radical mastectomy in a few centres to include the supraclavicular and internal mammary nodes is a justifiable procedure. When no axillary nodes are involved, such operations practised routinely are probably futile in about 80% of cases. Where the tumour grade is high, i.e. the "bad cancer", we might predict that with neoplastic spread to either of these adjacent sites the procedure is useless in 100% of cases. This leaves a decidedly limited group which may be benefited, and involves a vast expenditure of energy to prove a point. But it is a tangible research expression on the part of a few against a challenging disease. Sufficient time has not elapsed to evaluate either the usefulness or harm of such radical procedures.

The Rigid Selection of Cases for Radical Surgery

There are two controllable problems which stand out: the patients are *too slow to report*, and the doctors are *too quick to operate*. One would not

think that contraindications to radical surgery need be emphasized, but we recently saw a patient with supraclavicular nodes and pleural effusion within two and one-half weeks of a mastectomy. Vital statistics to the contrary, there is a place for selective treatment in mammary carcinoma. The patient without axillary nodes or with minimal node involvement is, relatively speaking, in a favourable position when a complete and thorough procedure of the Halsted type is performed.

Showers of tumour cells in peripheral blood are reported during surgical manipulations and with a negative host resistance it is postulated that such a phenomenon may have significant consequences, but of this there is no clinical proof. Even so, to employ radical mastectomy for maximum effectiveness one must exclude the advanced or biologically vicious types, and select patients on a rigid basis.

There must be no distant metastases, which means a preoperative survey of chest, pelvis and thoracic spine; no supraclavicular nodes, no edema of the breast, no fixation of tumour to chest wall, no nodular skin invasion, no ulceration of skin, no edema of the arm and no bulky axillary nodes.

After the patients have been selected carefully, radical mastectomy is performed, and postoperative radiotherapy is given to all who have node involvement and to those without node involvement if the degree of malignancy is high by microscopy and, as a general rule, if the patient is below the age of 55.

Simple Mastectomy Plus Irradiation

McWhirter[16] and his surgical colleagues have established the effectiveness of maximum irradiation dosage in controlling residual cancer. His 58% five-year survival figures for stages 1 and 2 have remained a challenge to the proponents of radical mastectomy, and have served as a stimulus to limit the criteria of operability for the radical procedure.

Commendable, convincing and valuable as this study has been, it is probably not advisable to settle for one regimen of treatment even though it offers a 58% salvage. The inclusion of the younger patients with minimal axillary node involvement in this routine plan is a disturbing thought.

Newer Aspects of Irradiation

Cobalt-60 beam therapy, supervoltage x-ray cesium teletherapy, the linear accelerator and the betatron have all been introduced within recent years. One can now, with lessened skin reaction and probably fewer complications, deliver with cobalt-60 a substantially increased dosage to the primary tumour if need be, and to the adjacent lymph node areas. This could and, in fact, should be beneficial in terms of controlled local recurrence and in influencing survival, but in view of the vicious potentialities of breast cancer one would be naïve in hazarding any opinion until time and case volume permit a proper statistical survey. Electron beam therapy, for instance, given postoperatively may be expected to lessen the characteristic recurrent parasternal bulge. Furthermore, should additional therapy be required for the control of pain due to bony metastases, minimal changes now noted in previously irradiated skin will be no obstacle.

For many years we have followed up the lead given by the late Dr. G. E. Richards and reported favourably upon by Ash, Peters and Delarue[11] of using preoperative irradiation for the obvious stage 2 patient with axillary nodes beyond 2 cm., yet technically operable, or with skin fixation or invasion; when reaction clears in six to eight weeks, radical mastectomy is performed. In so doing, few cases are left from our total volume for the McWhirter simple mastectomy irradiation plan which is held in reserve for the older patient or one of poor surgical risk. Patients with later stages of more advanced local disease and of borderline operability are accepted primarily for radical irradiation and are reassessed at regular intervals: a few may be subjected later to mastectomy, but on the whole this group is probably better managed in conjunction with hormones.

Actually, since developing the aspiration cytology technique, we have extended preoperative cobalt-60 therapy to an even earlier group, namely, those with a small clinically significant axillary node, or a suspicious node with positive cytology; but it is too early to consider the value of this development.

In some centres radon seeds,[18] and now radioactive yttrium,[19, 20] are being inserted through the nostril into the pituitary fossa to induce irradiation ablation of pituitary function. The palliative results achieved seem to parallel those of surgical hypophysectomy. Studies also are reported on the use of massive doses of high-energy protons to the pituitary, with objective evidence of tumour remission.[21]

Paterson,[22] in a controlled clinical trial to study the effectiveness of x-ray castration used as a prophylactic measure postoperatively, obtained results which we feel oblige us to recommend x-ray sterilization in patients approaching the menopause or up to five years thereafter. For example, for stage 1 cancer his five-year survival was 93.3% for those so treated and 84.8% in the control group. This slight improvement suggests that it is advisable in the younger patient harbouring nodes or anaplastic cancer to induce menopause by x-ray.

Hormonal Therapy and Its Ramifications

Palliative treatment has been the backbone of medicine down through the ages. The most dramatic aspect of mammary cancer control within the past 15 years is the observation that disseminated cancer can often be influenced favourably by altering its hormonal environment.

In the face of little help at present from biological assays or vaginal cytology to assist in selection

of patients, our basic program is as follows. In patients with disseminated disease up to the age of the menopause and five years thereafter the first step is oophorectomy, from which approximately 40% will receive benefit for three to eighteen months: x-ray castration is permissible and is a simple alternative if the situation is not urgent, giving benefit in about 27.6% of patients for three to 20 months.[23] If these procedures fail to control the disease, androgen therapy is tried, using fluoxymesterone in 5-mg. doses two or three times daily; if response is not maintained on the androgen regimen, this is followed by a trial of cortisone, 25 mg. four times daily, while still hoping for and indeed at times obtaining some startling results.

For patients beyond the age of 60 we use estrogens (estinyl 0.5 mg. twice daily) until clinically ineffective, following them by androgens and finally by a cortisone preparation.

Ten per cent of patients with osteolytic lesions may have a degree of hypercalcemia, and another 10% even within two or three days after either androgen or estrogen therapy may develop a high serum calcium level. Immediate administration of cortisone, up to 300 mg. daily, may bring the hypercalcemia, which can be fatal, under control. Also the results of using prolonged-action injectable hormones must be observed cautiously initially.

Adrenalectomy is bypassed in our centre in favour of hypophysectomy, 24 of which have been performed since 1954;[17] since using cortisone and radioactive phosphorus the indications for hypophysectomy seem to be narrowing down. The ideal candidate fulfils the following:

(a) One who along the protracted, sequential line of treatment has demonstrated an estrogen-dependent tumour, by having benefited from oophorectomy, x-ray castration, or cortisone, or by having had an exacerbation after estrogen therapy.

(b) One who is emotionally stable.

(c) One who has survived five years from the date of diagnosis, indicating a good host resistance.

(d) One who is preferably in the 50-60 year age-group.

(e) One without liver disease or cerebral metastases.

Objective remission from hypophysectomy has varied from two and a half to eighteen months, averaging nine months. It is conservative to estimate that in 50% the results were worth while.

This briefly is an outline of our present hormone therapy, from which, because of so many individual circumstances, we frequently deviate.

SUMMARY

Cancer of the breast is the leading single cause of death in females between the ages of 35 and 44. An anticipated 1600 new breast cancer cases will develop in the province of Ontario this year. Based on statistical data for the years 1955-1958, mortality from breast cancer in Ontario averaged 713 annually.

The Division of Medical Statistics of the Ontario Department of Health reports in Ontario a decline in female death rate from cancer of all sites (adjusted for age) per 100,000 population from 147 in 1936 to 125 in 1957. No real, significant change in the numbers of early breast cancer can be reported. Intensive and selective education of the public through the Canadian Cancer Society is advocated. Detection of early breast cancer, using a 22-gauge needle, is accurate in 92% of cases.

Recognition of the "good cancer" and the "bad cancer" and the inherent implications are noted. Degree of malignancy is recognizable by histological grading, and the significance in prognosis is discussed. Radical surgery is unchallenged as the treatment of early breast cancer, with newer forms of irradiation playing an important complementary role. A plea is made for the selective management of each patient, keeping in mind the many factors related to prognosis. Hormonal therapy and its related ablative procedures can be dramatic for the individual patient and are indicative of the determination of the patient and the profession never to give up.

REFERENCES

1. MACKAY, E. N.: Ontario Department of Health, Division of Medical Statistics: Personal communication, May 4, 1960.
2. PHILLIPS, A. J. AND OWCHAR, M.: Mortality trends in Canada for various sites of cancer, National Cancer Institute of Canada, Toronto, 1955.
3. ONTARIO DEPARTMENT OF HEALTH, Division of Medical Statistics: Twenty-third annual statistical report on cancer, 1958, Toronto, 1959.
4. MACKAY, E. N.: Ontario Department of Health, Division of Medical Statistics: Personal communication, February 9, 1959.
5. SMITH, I. H.: *Canad. M. A. J.*, **81**: 1017, 1959.
6. HANDY, V. H. AND GERHARDT, P. R.: *New York J. Med.*, **59**: 793, 1959.
7. SMITH, I. H. *et al.*: *Canad. M. A. J.*, **80**: 855, 1959.
8. MCKINNON, N. E.: *Ibid.*, **73**: 614, 1955.
9. HAAGENSEN, C. D.: Diseases of the breast, W. B. Saunders Company, Philadelphia, 1956, p. 627.
10. WATSON, T. A.: *Surg. Gynec. & Obst.*, **104**: 106, 1957.
11. ASH, C. L., PETERS, V. AND DELARUE, N. C.: *Ibid.*, **96**: 509, 1953.
12. BLOOM, H. J. G. AND RICHARDSON, W. W.: *Brit. J. Cancer*, **11**: 359, 1957.
13. HAAGENSEN, C. D.: Diseases of the breast, W. B. Saunders Company, Philadelphia, 1956, p. 525.
14. HANDLEY, R. S.: *Acta Unio internat. contra cancrum*, **15**: 1030, 1959.
15. HAAGENSEN, C. D.: Criteria of operability in breast cancer, *In*: Breast Cancer, The Second Biennial Louisiana Cancer Conference, edited by A. Segaloff, C. V. Mosby Company, St. Louis, 1958, p. 98.
16. MCWHIRTER, R.: *Brit. J. Radiol.*, **28**: 128, 1955.
17. PLUNKETT, E. R.: Investigation of endocrine aspects of cancer in humans, *In*: The Ontario Cancer Treatment and Research Foundation Annual Report, 1958-1959, Toronto, p. 114.
18. FORREST, A. P. M. *et al.*: *Lancet*, **1**: 399, 1956.
19. *Idem*: *Acta Unio internat. contra cancrum*, **15**: 1089, 1959.
20. IRONSIDE, W. M. S., MOSELEY, R. D., JR. AND DE VOS, W. N.: *Ibid.*, **15**: 1102, 1959.
21. BORN, J. L. *et al.*: Biological and medical studies with high energy particle accelerators, *In*: Proceedings of the Second United Nations International Conference on the Peaceful Uses of Atomic Energy, 1958, P/2371, vol. 26, United Nations, Geneva, 1958.
22. PATERSON, R. AND RUSSELL, M. H.: *J. Fac. Radiologists*, **10**: 130, 1959.
23. GORDON, D. L. AND SEGALOFF, A.: Castration as a palliative therapy for advanced breast cancer, *In*: Breast Cancer, The Second Biennial Louisiana Cancer Conference, edited by A. Segaloff, C. V. Mosby Company, St. Louis, 1958, p. 187.

There is no better way of knowing people than by studying how they amuse themselves. Of the three points in life's triangle—toil, rest and recreation—two are oppressively monotonous: work and sleeping. "Serious" activities are similar everywhere. Only when a person tries to fill his leisure is the difference between him and others revealed. Our dreams are the personal dowry we bring into the world.—F. Marti-Ibanez: Centaur: Essays on the History of Medical Ideas, MD Publications Inc., New York.

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A TEN-MINUTE TEST OF THYROID FUNCTION*

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A TEST OF THYROID function has been in use at St. Michael's Hospital in Toronto since 1957 that takes only ten minutes of the patient's time.[1] It can easily be combined with any of the other radioactive iodine tests, it gives useful additional information in all cases of thyroid disease, and it greatly increases the diagnostic accuracy of radioactive iodine tests in hyperthyroidism.

Thyroid function is divided into several steps, and existing tests of thyroid function reflect only one of these steps. Starting at the end of the process and working backwards, the B.M.R. (basal metabolic rate) test gives a measure of the effect of thyroid hormone on peripheral tissues; the protein-bound iodine and butanol-extractable iodine give a measure of thyroid hormone in the blood; the protein-bound radioactive iodine gives a measure of hormone secretion; and the 24-hour thyroidal uptake of radioactive iodine gives some idea of the rate of formation of thyroid hormone. The remarkable ability of the thyroid gland to "trap" or concentrate iodine is not accurately reflected in any of these tests, but the ten-minute uptake does give a measure of this function.

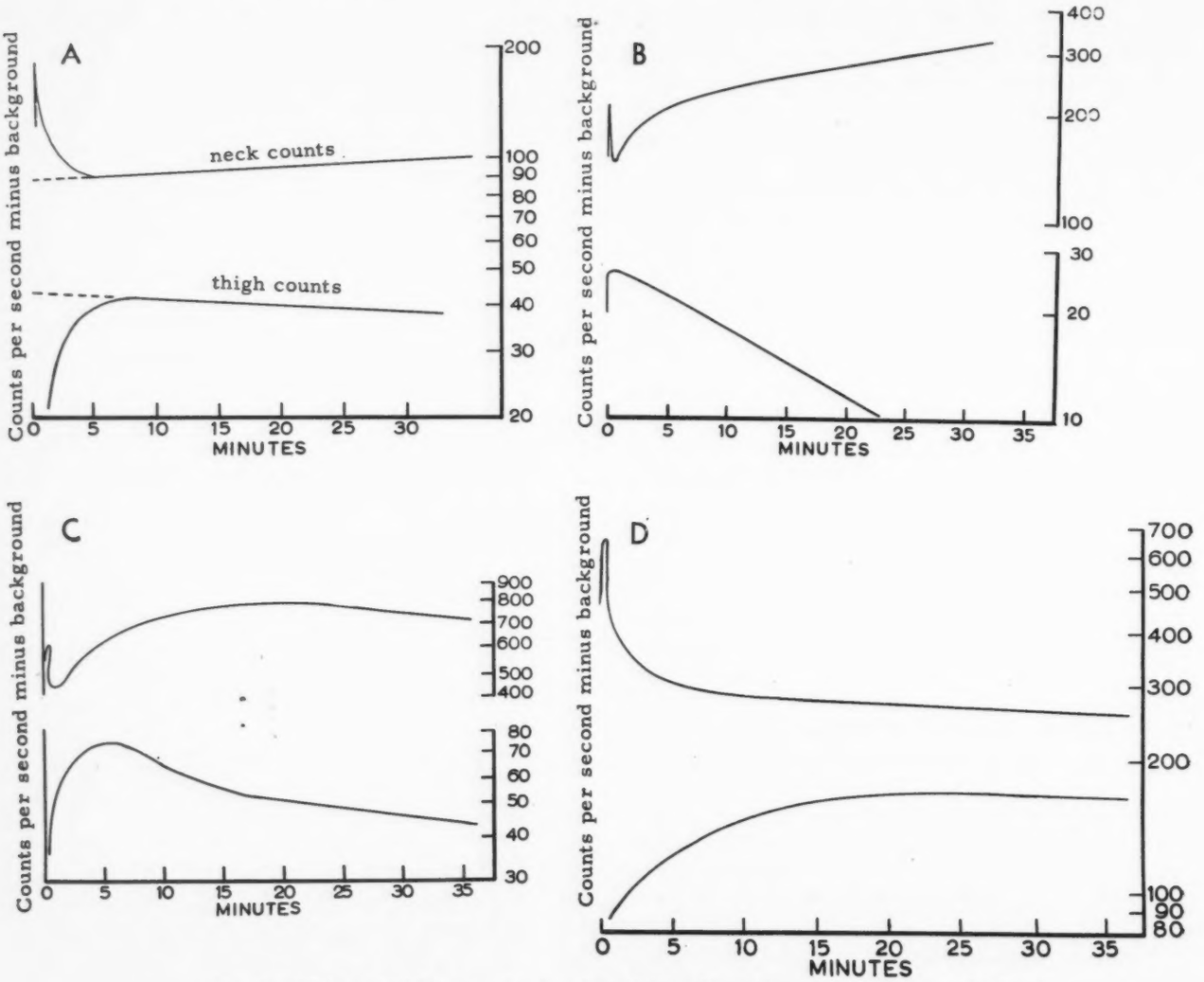

Fig. 1.—Neck and thigh counts of radioactivity after intravenous injection of I^{131}: A. In a normal subject (euthyroid). B. In a patient with thyrotoxicosis. C. In a patient with thyrotoxicosis after one week of treatment with Neomercazole (20 mg. three times daily). D. In a patient with thyrotoxicosis after treatment with 400 mg. of $KClO_4$. (Reprinted from *J. Clin. Endocrinol.*, 19: 557, 1959.)

PRELIMINARY STUDIES

If Geiger or scintillation counters are placed over the neck and thigh of a normal patient, and the counts are recorded after an intravenous injection of radioactive iodine, they describe curves such as those in Fig. 1A, when plotted on semi-logarithmic graph paper. The initial peak in the neck counts is due to the high concentration of radioactivity in the great vessels of the neck and it soon falls off. The neck curve then rises slowly while the thigh curve falls slowly.

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Read at the 93rd Annual Meeting of the Canadian Medical Association, Banff, Alta., June 15, 1960.

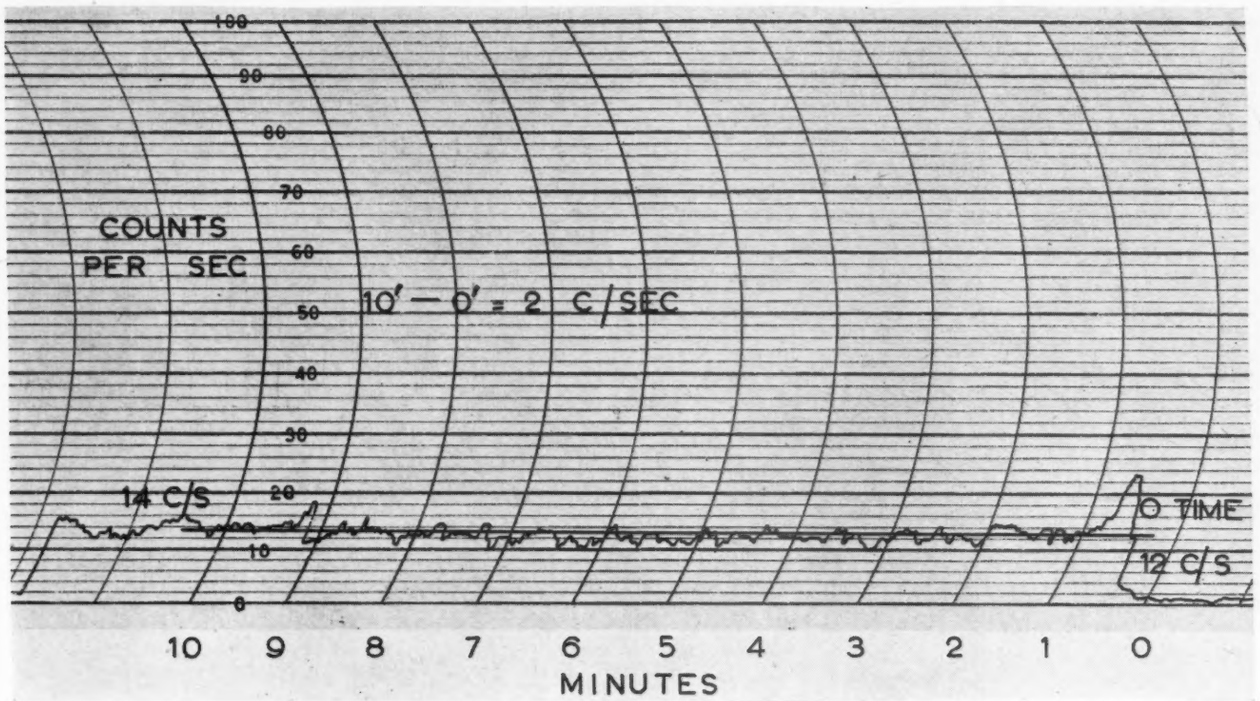

Fig. 2.—Continuous record of neck counts after intravenous injection of 9 microcuries of I^{131} in a normal patient.

In a hyperthyroid patient, on the other hand, there is an immediate rapid rise in the neck counts after the injection peak, and then after 10 to 15 minutes the curve straightens out and rises more gradually (Fig. 1B). The counts over the thigh naturally fall off more rapidly than in the normal.

When such a patient is given a drug which blocks the formation of thyroid hormone, but not the iodine-trapping mechanism, the initial part of the curve is unchanged. The latter part of the curve, however, falls off at a rate parallel to that described by counts over the thigh (Fig. 1C).

That the initial part of the neck curve was due to "iodine trapping" is shown in Fig. 1D, for the administration of a drug which blocks the iodine-trapping mechanism has abolished the initial high uptake.

Larsson and Jonsson[2] in Sweden had utilized the early part of this curve as a test of thyroid

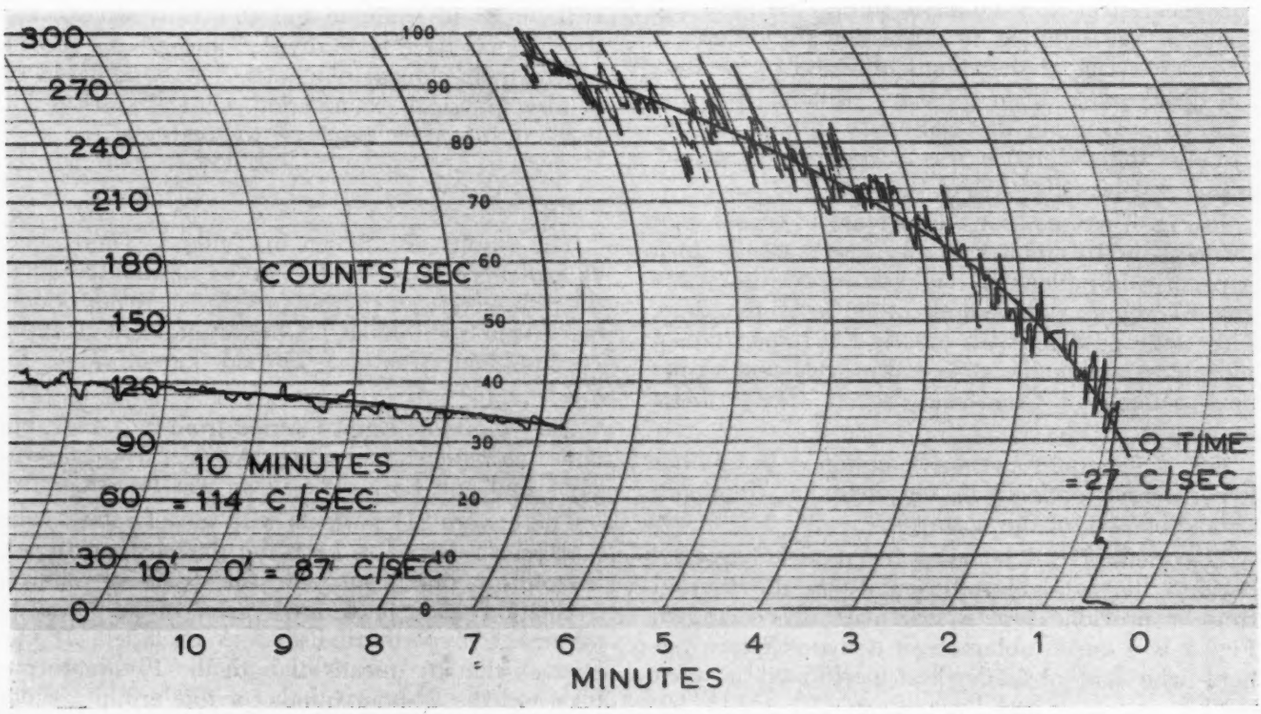

Fig. 3.—Continuous record of neck counts after intravenous injection of 9 microcuries of I^{131} in a case of thyrotoxicosis.

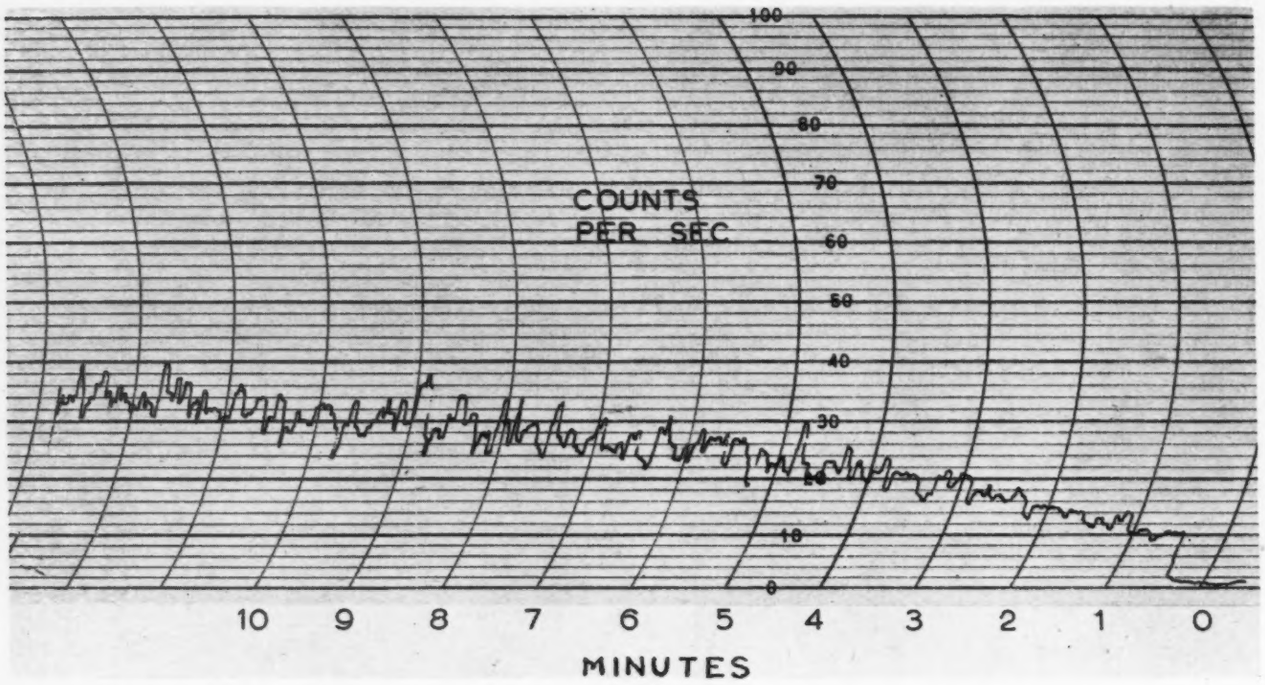

Fig. 4.—Continuous record of neck counts after intravenous injection of 9 microcuries of I^{131} in thyrotoxicosis.

function, and we have used a slight modification of their method in our laboratory.

METHOD

After intravenous injection of from 5 to 9 μc. I^{131}, and using a scintillation counter, medical spectrometer and continuously recording rate meter, we obtained curves, such as those shown in Fig. 2, in normal patients. Details of the method and instrumentation have been reported previously.[1] The curve is extrapolated back to zero time and this theoretical neck count is subtracted from the count at ten minutes. By expressing the difference as a percentage of the counts obtained by measuring the dose of I^{131} at the same distance from the counter, we obtain the 10-minute uptake. In this instance the difference was 2 counts per second, which was less than 1% of the dose.

In Fig. 3 we see that the increase in counts over the neck in 10 minutes is very much greater in a hyperthyroid patient. In this instance the difference was 87 counts per second, or 54% of the dose. This test was done with exactly the same dose of radioactive iodine, i.e. nine *microcuries*, and on the next patient on the same day as the previous tracing.

Fig. 4 illustrates the curve obtained in another hyperthyroid patient. It represents a 10-minute uptake of 14% of the dose.

The method can be used for repeated testing, because the residual radioactivity in the thyroid from a previous test is automatically excluded. Fig. 5 is a curve obtained in a hyperthyroid patient who had a similar test performed a week earlier, and also had been given 150 μg. of triiodothyronine daily in the interim, in an attempt to suppress the uptake of radioactive iodine. Since it is the increment in counts that is important, the residual radioactivity does not confuse the issue. This curve represents a 10-minute uptake of 19%.

CLINICAL MATERIAL

We had previously found the 10-minute uptake to be a very useful test[1] and have now had the opportunity to compare it with the clinical state of the patient and with other tests of thyroid function in 576 cases.

In order to evaluate the 10-minute uptake test the patients have been divided into groups according to their clinical diagnosis. This was based on history, physical examination, clinical course, and in doubtful cases, response to treatment.

RESULTS

The results are shown in Table I. There were 76 patients who were considered normal. In all of them three tests of thyroid function were performed, i.e. 10-minute uptake, 24-hour uptake and P.B.I. (protein-bound iodine); all had normal values for P.B.I.

The 10-minute uptake varied from 0 to 4.5% but only two patients had an uptake over 3%: one was 3.5% and one 4.5%. The mean was less than 1%.

There were 211 patients with anxiety states who had been referred to have the diagnosis of hyperthyroidism ruled out. On the basis of clinical evaluation and, in a few cases, of response to treatment, hyperthyroidism was excluded. It can be seen that the means of both the 10-minute uptake and the 24-hour uptake of this group are not significantly different from those for the normal

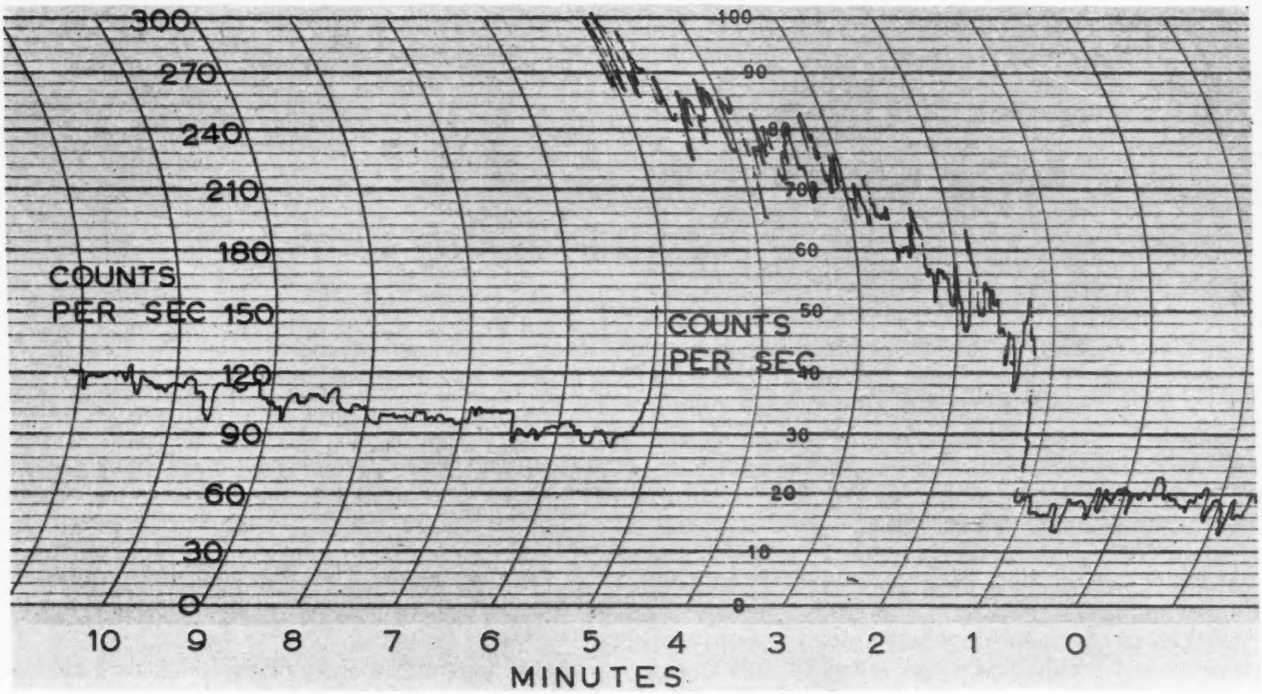

Fig. 5.—Curve following repeat injection of I^{131} in thyrotoxicosis.

groups ($P < 0.001$), and in the subsequent table the two groups are combined under the title "no thyroid disease".

The 10-minute uptake tended to be slightly higher in the non-toxic goitre group than in the normal group, while the 24-hour uptake tended to be the same as for the normal group, though the range was wider. The significance of this will be discussed later.

Ninety-eight cases of Graves' disease and 33 cases of toxic nodular goitre were evaluated. The mean of the 10-minute uptakes for the patients with Graves' disease was 16 times the mean of the normal group, and the mean of the patients with toxic nodular goitre ten times the mean of the normal group. This spread above normal was much greater than for the 24-hour uptake in the same groups.

In hypothyroidism and thyroiditis the ten-minute uptakes overlapped the normal range too much to be useful in diagnosis, but as we shall see later, they gave useful information about individual patients.

In Table II the 10-minute uptake, 24-hour uptake, and P.B.I. values are compared in the patients who had all three tests. There is no significant difference between the means of this group and the means of the larger group shown in the first table, which included patients who had only the

TABLE I.

		10-minute uptake (% dose)		*24-hour uptake (% dose)*	
Clinical diagnosis	*No.*	*Mean*	*Observed range*	*Mean*	*Observed range*
Normal	76	0.96	0 - 4.5	24.4	14.2 - 45.2
Anxiety states	211	0.91	0 - 2.9	23.9	14.0 - 42.2
Non-toxic goitre	94	2.57	0 - 40.8	26.4	8.0 - 51.7
Graves' disease	98	16.0	1.2 - 47.0	68.1	26.4 - 98.0
Toxic nodular goitre	33	10.2	1.2 - 31.0	58.6	31.8 - 90.0
Hypothyroidism	40	0.54	0 - 3.7	6.5	0 - 13.3
Thyroiditis	24	1.91	0 - 11.0	13.9	0 - 50.8

TABLE II.

		10-minute uptake (% dose)		*24-hour uptake (% dose)*		*Serum P.B.I. (γ/100 ml.)*	
Clinical diagnosis	*No.*	*Mean*	*Standard deviation*	*Mean*	*Standard deviation*	*Mean*	*Standard deviation*
No thyroid disease	93	1.08	0.91	23.9	7.1	5.0	0.82
Non-toxic goitre	55	3.27	5.83	26.6	12.0	5.3	1.31
Graves' disease	49	16.00	10.24	67.2	18.0	12.5	3.72
Toxic nodular goitre	23	8.02	6.24	54.5	12.6	10.3	2.63
Hypothyroidism	28	0.70	1.17	6.3	1.3	2.0	1.03
Thyroiditis	17	2.37	2.98	17.5	15.5	5.1	2.02

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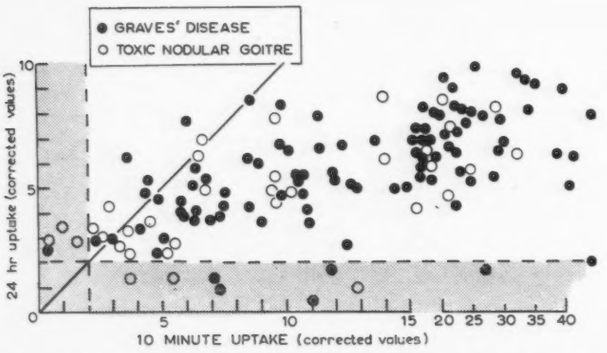

Fig. 6.—Cases of Graves' disease and toxic nodular goitre plotted according to the 10-minute and 24-hour thyroidal uptake of I^{131} in terms of standard deviations above the mean of the normal group. The dotted lines represent the normal range (two standard deviations) above the mean.

The 116 points that lie to the right of the diagonal line represent patients in whom the 10-minute uptake was elevated more than the 24-hour uptake. Thirteen points to the left of the diagonal line represent patients in whom the 24-hour uptake was elevated more than the 10-minute uptake.

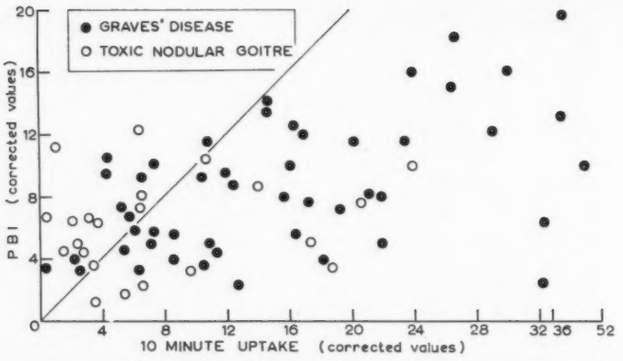

Fig. 7.—Cases of Graves' disease and toxic nodular goitre plotted according to the 10-minute thyroidal uptake of I^{131} and the serum protein bound iodine in terms of standard deviations of the mean of the normal group. The 53 points to the right of the diagonal line represent patients in whom the 10-minute uptake was elevated more than the P.B.I., and the 21 points to the left of the diagonal line represent patients in whom the P.B.I. was elevated more than the 10-minute uptake.

10-minute uptake and 24-hour uptake determinations made.

The mean of the P.B.I. values in the hyperthyroid patients is roughly twice the mean of the group with no thyroid disease. The mean of the 24-hour uptake in the hyperthyroid patients is roughly two and a half times the mean of the normal group, while the mean of the 10-minute uptakes is more than eight times the mean of the normal group.

DISCUSSION

The problem of comparing the accuracy of diagnostic tests which have different normal ranges and different units is difficult by simple inspection. Generally speaking, the more standard deviations a value lies above the mean of the normal group, the more significant is its deviation above normal.

The most important feature of any test of thyroid function is its value in the diagnosis of hyperthyroidism.

In Fig. 6 we have compared the 10-minute uptake and 24-hour uptake in each patient with hyperthyroidism by plotting the number of standard deviations the value is above the normal mean. Zero represents the mean of the normal group for both tests. The abscissa represents the 10-minute uptake in terms of standard deviations of the normal group, and the ordinate the 24-hour uptake in the same terms.

In a normal population, 95% of the values will be within two standard deviations of the mean, so that the square formed by the dotted lines encloses values for both tests that are within the normal range.

The patients with Graves' disease are represented by the closed circles, and the patients with toxic nodular goitre by the open circles.

It can be seen that no patients fall within the normal range for both tests, and in nine patients the 10-minute uptake was definitely elevated while the 24-hour uptake was within the normal range. In only four patients was the 24-hour uptake elevated while the 10-minute uptake was within the normal range. The diagonal line represents points that are equally above the normal mean for both tests.

In 116 out of 133 cases of thyrotoxicosis, the 10-minute value was elevated more than the 24-hour uptake value. In only 13 was the reverse situation true.

In Fig. 7 the 10-minute uptake and the P.B.I. values in patients with hyperthyroidism are compared. The 10-minute uptake gave a better spread above normal than the P.B.I. in 53 of 76 cases, while the P.B.I. gave the better spread in 21. In Graves' disease the 10-minute uptake was better in 39 of 49 cases, but in toxic nodular goitre the two tests were of equal value. There were no patients who had normal values for both tests. Four had normal values for the 10-minute uptake and P.B.I. values above the normal range. There were two with P.B.I. values in the normal range and high 10-minute uptakes.

Though not helpful in the diagnosis of hypothyroidism, the 10-minute uptake may provide useful information in this condition.

This is illustrated in the following case.

Mrs. E.B. had chronic bronchitis and asthma and was admitted to St. Michael's Hospital with obvious myxedema. She presented the classical picture of thin brittle hair, large tongue, husky voice, puffy eyes, dry scaly skin, and delayed relaxation of the tendon reflexes. She had developed these symptoms one and a half years after starting Bethiodyl.®

When the drug was stopped her uptake rose, and her P.B.I. first came down and then rose (see Table III).

When she was readmitted subsequently she admitted to having taken some Bethiodyl® at home. Her 10-minute uptake was fairly high, indicating that her thyroid was being stimulated, but the 24-hour uptake was zero, indicating that iodide could not be retained in the gland or bound to protein. As time elapsed the situation reversed itself, suggesting that the block had been removed and that the gland was now functioning normally.

TABLE III.—MRS. E.B., AGED 62

Date	10-minute uptake	24-hour uptake	P.B.I.
First admission:	*Clinical myxedema*		
Dec. 4/58.....	Drink	9.8%	18.9
Dec. 11/58.....	4.5%	56.7%	4.1
Dec. 15/58.....	5.1%	38.8%	
Dec. 18/58.....	5.6%	22.7%	8.3
Third admission:			
March 12/59.....	3.7%	0 %	3.2
March 16/59.....	3.6%	5.7%	
March 24/59.....	2.0%	20.0%	3.0%

Had no 10-minute uptake been performed at this stage, the picture would have been incomplete. Similarly, in non-toxic goitre the presence of a high 10-minute uptake suggests interference with thyroid hormone production and increased activity of thyroid stimulating hormone as exemplified in the next case.

Mrs. H.T., a 49-year-old woman, presented with a large goitre and had symptoms of anxiety. Clinically she was euthyroid. The very high 10-minute uptake value combined with a low 24-hour uptake value could not have been possible unless the production of thyroid hormone was blocked (Table IV). It turned out that

TABLE IV.—MRS. H.T., AGED 49, LARGE GOITRE

Date	10-minute uptake	24-hour uptake	P.B.I.
July 28/58.....	42%	15%	7.7
August 11/58.....	42%	94%	5.8
January 27/59.....	0%	0%	
	Goitre disappeared		

the patient had been taking caffeine iodide for asthma for five years, beginning eight months before the appearance of her goitre. She was advised to discontinue the drug. Two weeks later she returned. The gland was still very hyperactive but was now able to bind most of the thyroid iodine. Administration of three grains of thyroid daily for six months resulted in complete disappearance of her goitre and suppression of both the 24-hour uptake and 10-minute uptake values.

If the 10-minute uptake tests had not been performed, this case of iodine-induced goitre would likely have been thought to be simple non-toxic goitre.

In all, six of the 94 patients with non-toxic goitre had high 10-minute uptakes, suggesting that they were being actively stimulated by thyrotropic hormone. They were the reason for the wide spread of the 10-minute uptake values in this group. In every instance there was a dramatic reduction in the size of these goitres when the patients were given dessicated thyroid or triiodothyronine. It is known that Hashimoto's thyroiditis is frequently associated with an increased ability to trap iodine, and that it responds rapidly to treatment by thyroid hormone.[3, 4] Some of these six cases may have been examples of this disease, for no tissue was obtained for histological study. It has been suggested by Floyd[5] that many non-toxic goitres have a defect in organic binding of iodine such as is illustrated in these cases. In our hands at least, a high 10-minute uptake indicates that a non-toxic goitre will respond to treatment with thyroid.

The ease with which residual radioactivity in the neck is excluded when this test is repeated makes it useful in studying changes in thyroid function from day to day (Fig. 5). Its short duration makes it ideally suited for use with the new isotope of iodine, I^{132}, with its short half-life. Einhorn has used a similar test with I^{132} to study the action of thyroid-stimulating hormone in normal and hyperthyroid patients.[6]

SUMMARY

The 10-minute uptake test has been compared with other tests of thyroid function, and has been found to give values in hyperthyroidism which are more significantly elevated than those for the 24-hour uptake or P.B.I.

It is not of value in the diagnosis of hypothyroidism and non-toxic goitre, but gives helpful information regarding the etiology and basic mechanism involved in these conditions and seems to be of value in predicting the response of non-toxic goitre to medical treatment.

My sincere thanks are due to Dr. A. H. Sellers and Miss Joan Sloman, B.A., of the Division of Medical Statistics, Department of Health of the Province of Ontario, for the statistical analysis of the results, and to Miss Norma Huber, R.N., and Miss Elizabeth Balogh who performed the protein-bound iodine determinations. I am also greatly indebted to Mr. Arthur Smialowski, who prepared the figures and graphs, and to Mrs. Elizabeth Dillon for skilful technical assistance.

REFERENCES

1. HIGGINS, H. P.: *J. Clin. Endocrinol.*, 19: 557, 1959.
2. LARSSON, L. AND JONSSON, L.: *Acta radiol.*, 43: 81, 1955.
3. PARIS, J. *et al.*: *J. Clin. Endocrinol.*, 20: 57, 1960.
4. WAYNE, E. J.: *Brit. M. J.*, 1: 78, 1960.
5. FLOYD, J. C., JR. *et al.*: *Clin. Res.*, 7: 244, 1959.
6. EINHORN, J.: *Acta radiol.*, 160: (supp.) 39, 1958.

STUDENTS AND young doctors are taught much about the public but there is also scope for the public to be taught about doctors. There is a danger in overuse of the term "family doctor" which often conjures up the fictitious picture of the old-fashioned pipe-smoking medico of the past who dispensed homilies, wisdom and largesse with equanimity and imperturbability. If such person ever existed, he belongs to the social milieu of his time. The doctor of today is much more of a technical expert (albeit with the same need for compassion and humanism) and he works in a totally different environment. Whereas in former years every medical situation was actually or potentially desperate, efficiency has taken away many of the dangers and horrors of the past. The respect of patients should be based on the ability to diagnose and control disease rather than ability to comfort and solace. Doctors cannot expect the public to respect them today for the reasons of yesterday.—Editorial, *New Zealand M. J.*, 59: 315, 1960.

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EVALUATION OF A NEW PREPARATION FOR THE SUPPRESSION OF LACTATION*

M. J. A. KELLY, M.A., B.M., B.Ch. and
T. PRIMROSE, M.D., F.R.C.S.[C], *Montreal*

THIS STUDY was instituted to assess the usefulness for the suppression of lactation of a pharmaceutical preparation, Frosst T 9040. The formula for this product is as follows:

Testosterone enanthate benzilic acid hydrazone	150 mg.
Estradiol dienanthate	7.5 mg.
Estradiol benzoate	1.0 mg.
Corn oil	q.s. 1.0 ml.

Testosterone enathate benzilic acid hydrazone[1] and estradiol dienanthate, derivatives of testosterone and estradiol respectively, have activity of long duration after intramuscular injection, while estradiol benzoate is promptly absorbed with activity of brief duration.

One hundred patients who did not intend to breast feed their babies, and who in the ordinary course of events would have been treated by firm breast binding and analgesics in the puerperium, were assigned to one of two groups of 50 patients, one group to be treated with Frosst T 9040, and the other group to serve as controls. Patients were allocated to the treated and control groups alternately and in a continuous series. No patients were rejected at first, but four women in the control series signed out of hospital before eight days and these were replaced by four other consecutive cases at the end of the experiment.

Patients were generally in hospital for eight days post partum and all of the patients in the trial had either normal or forceps deliveries. No cases of twin pregnancy or Cesarean section were included.

One of us (M.J.A.K.) undertook the ward observation which entailed examining the breasts on the first, third, fifth and eighth days after delivery without knowledge of which patients were in the treated or in the control group until after the trial was concluded.

Two c.c. of Frosst T 9040, which had previously been tested and found to be free of toxicity or gross side effects, was injected intramuscularly within half an hour of delivery before the patient left the case room for the ward. Both the controls and the injected patients had their breasts bound in a similar fashion using a modified Murphy binder, and analgesics (A.S.A. compound) were offered as needed. The following observations were made on each patient:

1. Breast firmness.

2. The effect of pressure applied to the periareolar region with two fingers. This was recorded as: (a) a drop of milk, (b) drops of milk, (c) a spurt of milk, (d) no milk, (e) colostrum.

The patient's experience of pain was not recorded because of the wide subjective variation as compared with the objective features noted above.

Background information as to origin, age, the existence of the married state, hemoglobin levels before and after delivery, parity and previous nursing was recorded to exclude disparity between the two groups.

BACKGROUND INFORMATION

	No. of patients in test group (total-50)	*No. of patients in control group (total-50)*
Age: 16 - 20 years	8	15
21 - 25 "	20	15
26 - 30 "	12	10
31 - 35 "	7	6
36 - 40 "	3	4
Married	39	34
Canadian	38	40
Hemoglobin value:		
Antepartum 6 to 9 g.%	1	4
9 to 12 g.%	37	38
12 plus g.%	12	8
Postpartum 6 to 9 g.%	3	6
9 to 12 g.%	31	34
12 plus g.%	16	10
Number of patients who had been pregnant once	16	17
Twice	9	9
3 times	7	9
4 times	6	3
5 times	2	3
6 times	6	6
7 times	1	1
8 times	1	1
9 times	2	1
Number of patients who nursed with first pregnancy	9	7
second "	5	2
third "	4	2
fourth "	3	1
fifth "	2	1
sixth "	1	0
seventh "	1	0
eighth "	1	0

The background information indicated that there was no significant difference between the two groups.

On reviewing the results obtained, it became obvious that there was no significant difference between the treated and the control group of patients by any of the criteria used.

The formula of the preparation was reviewed and it was considered that the amount of the rapidly absorbed and rapidly acting component, namely, estradiol benzoate, was suboptimal, and it was decided to modify the formula by increasing this component from 1.0 to 3.0 mg. per ml., keeping the depot-type ingredients the same. The new formula, Frosst T 9040A, had the following composition:

Testosterone enanthate benzilic acid hydrazone	150 mg.
Estradiol dienanthate	7.5 mg.
Estradiol benzoate	3.0 mg.
Corn oil	q.s. 1.0 ml.

*From the Department of Obstetrics and Gynecology, Royal Victoria Montreal Maternity Hospital and McGill University, Montreal.

RESULTS

Feature	*Days post partum*	*Test*	*Control*
Colostrum	1	3	12
	3	7	12
	5	10	18
	8	13	12
Firmness	1	0	4
	3	13	17
	5	34	41
	8	25	24
Milk drop	1	2	6
	3	7	7
	5	7	13
	8	13	9
Milk drops	1	3	3
	3	3	9
	5	12	10
	8	15	17
Milk spurt	1	0	0
	3	1	1
	5	3	0
	8	1	2
No milk	1	45	41
	3	39	34
	5	28	27
	8	21	22

RESULTS

Feature	*Days post partum*	*Test*	*Control*
Colostrum	1	11	12
	3	9	12
	5	8	18
	8	11	12
Firmness	1	0	4
	3	7	17
	5	22	41
	8	9	24
Milk drop	1	3	6
	3	9	7
	5	11	13
	8	4	9
Milk drops	1	1	3
	3	2	9
	5	12	10
	8	16	17
Milk spurt	1	0	0
	3	0	0
	5	0	0
	8	1	2
No milk	1	46	41
	3	39	34
	5	27	27
	8	29	22

A further 50 consecutive patients were injected with 2 c.c. of the modified formula immediately post partum, and observations as described in the first series were recorded. It was considered that the original control series would suffice, as the nursing staff was the same and no noteworthy differences in the homogenicity of the group could be detected.

The addition of more of the quick-acting estrogen to the original formula seemed to have a considerable effect. In all respects the results in the suppression of lactation and in patient comfort were much enhanced.

The nursing staff were impressed by the ease of nursing the patients in the last group who received the new formula Frosst T 9040A.

No follow-up was undertaken because many were referred from outside our area and we do not normally see these patients for postpartum care at the six-week interval. A mail survey was not done because of the inherent disadvantages of this method of collecting factual data.

BACKGROUND INFORMATION

	Test	*Control*
Age: 16 - 20 years	15	15
21 - 25 "	16	15
26 - 30 "	6	10
31 - 35 "	12	6
36 - 40 "	1	4
Married	32	34
Canadian	43	40
Hemoglobin value:		
antepartum 6 to 9 g.%	0	4
9 to 12 g.%	35	38
12 plus g.%	15	8
postpartum 6 to 9 g.%	1	6
9 to 12 g.%	37	34
12 plus g.%	12	10
Number of patients who had been		
pregnant once	15	17
twice	12	9
3 times	9	9
4 times	2	3
5 times	7	3
6 times	2	6
7 times	0	1
8 times	2	1
9 times	1	1
10 times	1	0
Number of patients who nursed with		
first pregnancy	9	7
second "	5	2
third "	3	2
fourth "	1	1
fifth "	1	1
sixth "	1	0
seventh "	1	0

DISCUSSION

Experimental evidence in lower animals suggests that mammary growth during pregnancy is associated with the increasing output of progesterone and estrogen by the placenta. It appears that estrogen favours the development of the ducts and progesterone that of the alveoli. Oxytocin, whose release is mediated by the suckling reflex, stimulates the ejection of milk from the lactating animal, and it appears that its action is inhibited to some extent by placental progesterone and estrogen. Recently the concept that androgens may exert a similar effect has provided the basis for a new approach to the problem of producing inhibition of lactation in the postpartum period, with a reduction of the effects of engorgement which results from the distension of venous, lymphatic and lacteal channels.

Among commonly used regimens may be mentioned the use of estrogens, androgens, and binders, supplemented by analgesics, fluid restriction, and ice. Estrogens appear to be the most effective, and of these stilbestrol is the best, a fact which was demonstrated by Primrose and Tremblay in 1957,[2] but the dosage is such that there may be a significant incidence of side effects, such as nausea, vomiting, rebound breast engorgement, and withdrawal

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uterine bleeding. Androgens alone may cause menstrual alterations and subinvolution of the uterus. The use of androgens and estrogens together has been tried in the hope that the beneficial effects may be summated and the side effects minimized.

SUMMARY

Suppression of lactation must be undertaken as soon as the baby is delivered.[3]

Adequate results can be obtained by oral therapy.[2]

When the patient signifies her unwillingness to nurse, a one-shot intramuscular injection at the time of delivery has great appeal to the patient.

It would appear that the preparation, Frosst T 9040A, is a useful agent in the conditions set forth above during the time of the patient's hospital stay. No nausea, rash or sickness was seen in the injected patients that could in any way be attributed to the drug or its vehicle.

REFERENCES

1. GLEASON, C. H. AND PARKER, J. M.: *Endocrinology*, 65: 508, 1959.
2. PRIMROSE, T. AND TREMBLAY, P. C.: *Am. J. Obst. & Gynec.*, 73: 1218, 1957.
3. WATROUS, J. B., JR., AHEARN, R. E. AND CARVALHO, M. A.: *J. A. M. A.*, 169: 246, 1959.

THE URETHROVESICAL ANGLE AND STRESS INCONTINENCE*

W. A. W. DUTTON, M.B., F.R.C.S.[C], M.R.C.O.G.,† *Hamilton, Ont.*

IN 1952, ROBERTS[1] and Jeffcoate and Roberts[2, 3] reported a series of observations upon the posterior urethrovesical angle and its relationship to urinary continence in the female. These authors used as their main method of observation the technique of lateral cystourethrography, and the conclusions they made may be summarized as follows: (a) Urinary continence depends upon a posterior urethrovesical angle of about 100 degrees. Stress incontinence is characterized by loss of the posterior urethrovesical angle. (b) The urethrovesical angle may be normal despite genital prolapse or abnormal in the absence of prolapse. (c) The urethrovesieal angle is maintained by the intrinsic musculature of the bladder neck. (d) The urethrovesical angle can rarely be restored by anterior colporrhaphy.

Bailey[4, 6] studied a large series of cases which supported these original observations.

It is the purpose of the present paper to present the results of a study of a number of patients by lateral cystourethrography since 1953.

MATERIAL

The present series numbers 146 patients who were critically evaluated regarding the presence or absence of demonstrable urinary stress incontinence. A careful urological screening was performed. Eighty-three patients were incontinent and 63 were continent. Lateral cystourethrography was performed on all patients using a technique similar to that described by the Liverpool investigators. X-ray studies were made with the patient at rest and then straining. In 22 patients an additional lateral view was taken with the patient supine.

RESULTS

(a) *The Urethrovesical Angle and Urinary Incontinence*

The first investigation concerns the relationship of the urethrovesical angle to urinary control. The results are shown in Table I.

TABLE I.—RELATIONSHIP OF URETHROVESICAL ANGLE TO STRESS INCONTINENCE (146 PATIENTS)

	Stress incontinence	*No stress incontinence*	*Totals*
Angle normal.....	29 (33.3%)	58 (66.7%)	87
Angle lost.....	54 (91.5%)	5 (8.5%)	59

It can be seen that when the angle was lost, the patient was nearly always incontinent. Very few patients with no angle remained continent. Where the angle was present, the majority of patients were continent, but one-third were undoubtedly incontinent.

Before attempting to draw any conclusions from this, it is necessary to refer to some sources of error in the method of examination employed, and to some difficulties in the measurement of the posterior urethrovesical angle.

A Source of Error

The results quoted above refer to the measurement of the angle on the films taken with the patients straining. This maneuver is an artificial way of trying to reproduce the appearance of the urethrovesical angle as it probably is during the more natural acts of coughing, laughing, sneezing, etc. Some patients were noted to strain only gently (probably to avoid the embarrassment of involuntary passage of flatus). In 39 cases, therefore, the "straining" films were repeated, the patients being encouraged to greater effort. The results obtained

*Based on a paper read before the staff and guests of the McGregor Clinic, December 8, 1959.
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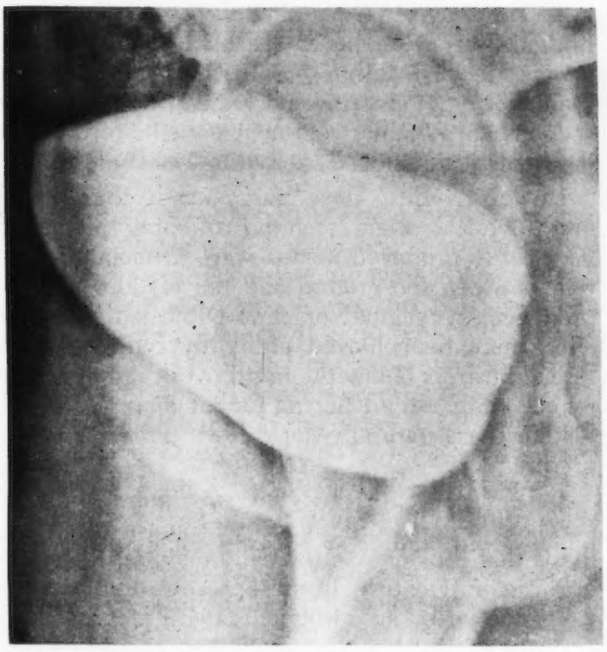

Fig. 1.—Lateral cystourethrogram, patient erect and straining. This film shows a "short posterior angle".

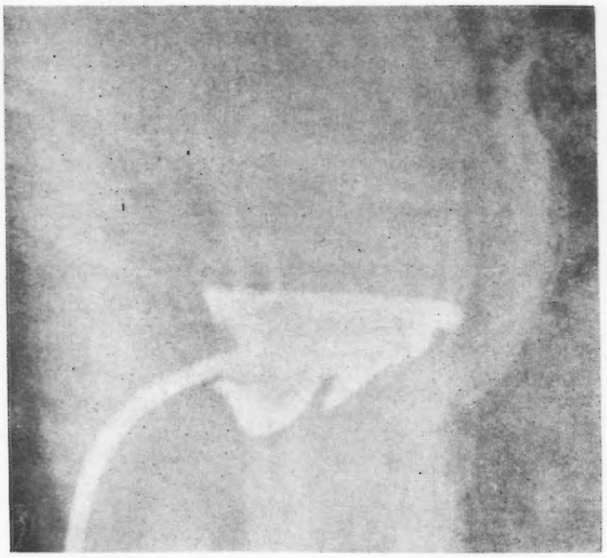

Fig. 2.—Lateral cystourethrogram, patient erect and straining. This film demonstrates the phenomenon of "beaking". Also seen is a filling defect produced by a Mercier's bar.

after comparing the two films were: no difference—30 cases; slight difference—4 cases; marked difference—5 cases. Where the difference was slight, no serious error in the measurement of the urethrovesical angle was introduced. But in the remaining five cases (16%) a serious error would have been introduced had the measurement of the angle from the first exposure been accepted. These were patients in whom the second (and more effective) straining effort obliterated a formerly normal angle. This source of error is important, but may be reduced by having the patient practise straining beforehand and by careful supervision at the time of taking the x-ray.

Some Difficulties in Measuring the Angle

In some cases there was difficulty in deciding whether the urethrovesical angle was normal or not.

1. The "short posterior angle". This not very satisfactory term was first used by Bailey to describe those cases in which there was a recognizable (and usually normal) angle but where the amount of bladder base behind the urethrovesical junction was much less than normally seen. Often, the distance between the urethrovesical junction and the posterior wall of the bladder was so short that only a very small kink marked the junction of the urethra with the bladder. Apart from this small angulation, the general shape of the bladder base seen in the lateral view was triangular—a condition often referred to as "funnelling" (Fig. 1).

In the present series the "short posterior angle" was common, 43 cases being seen. The condition appears to be mainly artificial, because 36 of these patients had had previous urethroplasty. But the condition does occur apart from surgery, for the remaining seven cases had had no previous operation. On relating the "short posterior angle" to the clinical situation we found that 24 (55.8%) were incontinent and 19 (44.2%) were continent. Therefore the patient with such an angle is a little more likely to be continent than if she had no angle at all (cf. Table I).

2. "Beaking". Another type of film which presented difficulty in interpretation was that in which the radio-opaque material was seen to leak into the upper urethra around the catheter. In most cases, this appeared on the x-ray as a small "beak" behind the catheter (Fig. 2). "Beaking" has been observed during cineradiographic studies of the urethrovesical junction,[6] but the clinical implications are not clear. In 21 instances of "beaking" in the present study, all but 4 patients were incontinent.

3. "Paradoxical behaviour of the urethrovesical angle". In five cases, the picture at rest showed complete loss of the urethrovesical angle, but on straining a small pouch of bladder appeared to herniate down behind the urethra. This did not quite conform to the picture described by Jeffcoate and Roberts as "hernia of the trigone". A member of our radiology department (Dr. J. Stapleton) has suggested the term "paradoxical behaviour of the angle".

4. "Bladder deformity". There were a few cases with very strange-looking bladders after pelvic operations (Fig. 3).

In the preparation of Table I, the urethrovesical angle was measured on the "straining" films. In all the difficult cases listed above, the closest possible interpretation was used, but it was felt that the comparison should be made again after taking out all 68 cases which did not lend themselves to a clear-cut "angle normal" or "angle lost" classification. The results of this second analysis are presented in Table II.

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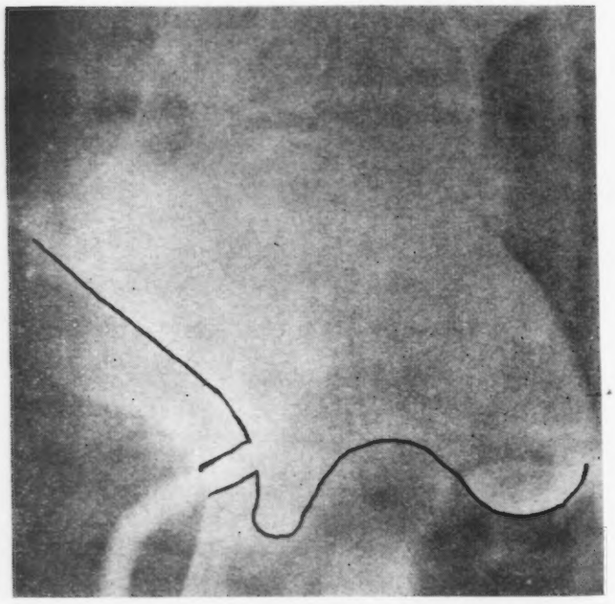

Fig. 3.—Lateral cystourethrogram, patient erect and straining. This film shows extraordinary deformity of the bladder base which followed an abdominoperineal excision of the rectum.

It is now seen that the correlation between the presence of the angle and continence, and the absence of the angle and incontinence, is very much closer. Indeed, the correlation shown in Table II is even greater than that originally claimed by Jeffcoate and Roberts.

TABLE II.—RELATIONSHIP OF URETHROVESICAL ANGLE TO STRESS INCONTINENCE (68 ATYPICAL CASES EXCLUDED)

	Stress incontinence	*No stress incontinence*	*Totals*
Angle normal	4 (10.5%)	34 (89.2%)	38
Angle lost	36 (90.0%)	4 (10.0%)	40

(*b*) *Prolapse and Stress Incontinence*

There was abundant evidence in the present investigation to confirm the contention that the appearance of the urethrovesical angle was quite independent of vaginal or uterine prolapse. But there was some evidence that prolapse of the urethrovesical junction was associated with a greater incidence of stress incontinence than in cases with a well-elevated urethrovesical junction. For instance, the ratio of incontinent to continent patients in those with abnormal descent of the junction (66) was 71.2%: 28.8%. For the 80 cases without abnormal descent, the corresponding ratio was 50%:50%.

This implies that elevation of the urethrovesical junction is a worth-while additional aim for the surgeon, though not, apparently, as important as restoration of the urethrovesical angle.

(*c*) *Factors Producing the Urethrovesical Angle*

Because the behaviour of the urethrovesical angle in this study appeared to be independent of vesical, vaginal or uterine prolapse, Jeffcoate's original view that the angle is maintained by the intrinsic muscular arrangement at the bladder neck is substantiated. The author has performed a sufficient number of autopsy dissections and operative dissections on normally continent patients to be satisfied that this is indeed the natural mechanism.

However, this does not mean that every urethrovesical angle seen on an x-ray picture is necessarily produced in this way. Artificial angulation between the urethra and the bladder may be produced by vaginal or suprapubic surgery. The effect may be achieved either by building up a fascial buttress below the urethrovesical junction or by elevating and advancing the junction so that the bladder base naturally flops down posterior to the urethra.

Some support for this view was found in an experiment originally designed to confirm the hypothesis that the angle is normally maintained by the intrinsic musculature. In this experiment 22 patients were studied by an additional lateral picture taken with the patient lying down. It was considered that such a change of posture should not change the angle. In 13 patients, there was no change in the angle, and in these patients the clinical picture correlated 100% with the Jeffcoate concept. In nine patients, the change in posture produced a marked change in the angle. In six of these, the clinical picture was precisely the opposite from that which would be expected, i.e. five had normal angles but were incontinent, and in one the angle was lost but she was continent. There are two possible explanations for this: either the urethrovesical angle concept is all wrong or the angles seen in these six cases were produced artificially by such extrinsic factors as periurethral adhesions. That these six cases constituted an odd group is further suggested by the fact that two of them exhibited the phenomenon of "paradoxical behaviour of the angle".

(*d*) *The Effect of Vaginal Repair on the Urethrovesical Angle*

In the present series, 13 patients originally having stress incontinence and complete loss of the angle were available for repeat x-ray study two years later. In six, the angle was completely restored with one clinical failure; in two, a "short posterior angle" was present with a successful clinical result; and in five, of whom three were again incontinent, the angle was not restored. In other words, where some degree of posterior angulation was maintained, seven out of eight patients remained continent but where the angle was not restored, three out of five patients were incontinent again.

DISCUSSION

The present study confirms that the presence or the absence of the posterior urethrovesical angle is related to the state of urinary continence. However, the evidence is against the concept that this is a causal relationship, for the following reasons. In the

first analysis, a little under half the cases (46.6%) did not present either a clear-cut "angle present" or an "angle lost" appearance. Many of these patients had had previous vaginal surgery, of whom many persisted in incontinence despite the presence of some sort of angle and a few remained continent even where the angle was virtually lost. In the second analysis, although the presence or absence of the angle showed a high degree of correlation with the state of urinary control, still 10.5% with a normal angle were incontinent and 10.0% without an angle were continent.

Despite these limitations, the present study demonstrates again that the urethrovesical angle is more closely linked to urinary control than uterine, vaginal or vesical prolapse. There must be another factor (or factors) related to the urethrovesical angle which is of greater fundamental importance. What this factor may be is still in the realm of speculation. It is possible that future studies of the internal urethral sphincter mechanism will provide an answer. Another interesting possibility stems from a simple clinical observation. Time and again one fails to demonstrate stress incontinence because the patient is simply asked to cough. But if the patient is instructed to bear down strongly and then to cough, incontinence is often seen. During lateral cystourethrography, straining almost invariably pushes the urethrovesical junction downwards and backwards. During this descent there seems to be a critical point where a sudden rise in intravesical pressure may catch the urethrovesical junction at the apex of the forceful impulse. At this point the patient may leak. Beyond this point leakage rarely seems to occur, and it is a striking clinical observation how very rare stress incontinence is in the patient with procidentia.

For the present, however, it appears that the urethrovesical angle theory still has practical value. Until the physiology of continence and the pathology of incontinence are better understood, it would seem to be worth while to continue in our attempts to restore the angle in incontinent patients and to explore better means of doing so. None of the usual operations in current vogue entail a direct attack upon the intrinsic bladder musculature despite the balance of evidence favouring this as being the site of the pathological lesion. The usual surgical approach to stress incontinence is urethroplasty, which is generally quoted as having about an 80% success rate. It is suspected that this good reputation for urethroplasty is only upheld provided a good proportion of the preoperative cases are mild and if the follow-up is concluded inside a two-year period. Jeffcoate and Roberts reported a very low incidence of restoration of the urethrovesical angle after anterior colporrhaphy (only 4 of 30 cases). Bailey had 31 total failures to cure incontinence with 83 cases (37.3%). In the present very small follow-up series the rate of restoration of the angle and of clinical cure was equally disappointing. It is possible that we should be less reluctant to abandon urethroplasty as the primary method of treatment for stress incontinence, at least where this is the main and presenting symptom. As Bailey so neatly puts it, "A trial by colporrhaphy can hardly be the correct scientific procedure."

SUMMARY AND CONCLUSIONS

A series of 146 patients was studied by lateral cystourethrography. The appearance of the films taken with the patients straining was liable to an error of 16%.

The first analysis showed a marked correlation between the absence of the posterior urethrovesical angle and stress incontinence (91.5%) but only a moderate correlation between the presence of the angle and urinary continence (66.7%).

It was found that in 68 patients (46.6%) there was difficulty in measuring the urethrovesical angle. The appearances described in this category were those of "short posterior angle", "beaking", "paradoxical behaviour of the angle" and bladder distortion.

A second analysis was made excluding the doubtful cases. This showed good correlation between the absence of the posterior urethrovesical angle and incontinence (90.0%), and also good correlation between the presence of the angle and continence (89.2%).

The relative lack of correlation between incontinence and uterine, vaginal and vesical prolapse was mentioned.

Additional evidence was advanced to support the contention that the urethrovesical angle is normally produced by the intrinsic bladder musculature. There was some evidence that urethrovesical angulation was sometimes produced by tissues outside the bladder neck but that such angulation was not physiological.

In a small follow-up series it was suggested that urethroplasty often fails to cure stress incontinence partly because it often fails to restore the urethrovesical angle.

It was concluded that the posterior urethrovesical angle is not the fundamental factor concerned with urinary control but that it is probably very closely linked to such a factor (or factors). Because of this, until new facts are discovered it was felt that it would be premature to discard the urethrovesical angle concept at the present time.

The present study was conducted with the encouragement of Dr. K. V. Bailey (Manchester) and Prof. C. Scott Russell (Sheffield). Dr. John Stapleton (Hamilton) was very generous with the facilities in his radiology department. Several patients were studied at the Ontario Hospital (Hamilton) through the kindness of Dr. Senn. During the period 1956-57 the author was assisted by a research grant from the Sheffield Regional Hospital Board. He wishes to record his thanks to all concerned.

REFERENCES

1. ROBERTS, H.: *Brit. J. Radiol.*, **25**: 253, 1952.
2. JEFFCOATE, T. N. A. AND ROBERTS, H.: *Am. J. Obst. & Gynec.*, **64**: 721, 1952.
3. *Idem*: *J. Obst. & Gynaec. Brit. Emp.*, **59**: 685, 1952.
4. BAILEY, K. V.: *Ibid.*, **61**: 291, 1954.
5. *Idem*: *Ibid.*, **63**: 663, 1956.
6. ARDRAN, G. M., SIMMONS, C. A. AND STEWART, J. H.: *Ibid.*, **63**: 26, 1956.

L'INFLUENZA 1959 CHEZ LES MILITAIRES HOSPITALISES A L'HOPITAL STE-FOY, QUEBEC

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INTRODUCTION

AU DÉBUT de 1959, soit du 19 janvier au 16 mars, l'influenza reprenait en Angleterre sous forme épidémique après seulement 16 à 18 mois de répit depuis l'Asiatique. On nous rapportait une épidémie, cette fois à deux souches de virus de l'influenza, soit les types A et B.[1]

Par contre la région centrale du sud de l'Ontario rapportait pendant la même période, de janvier à la fin d'avril, une épidémie caractérisée par un syndrome grippal mais où, dans 78 des 175 spécimens, Labzoffsky et ses co-travailleurs[2] isolèrent le virus 433 apparenté au virus Hémadsorption I. Il s'agissait donc là aussi d'une épidémie mixte mais différente de celle qui sévissait en Europe.

Ici à l'Hôpital Ste-Foy de Québec, dans le service de médecine qui relève directement de l'armée et qui s'occupe exclusivement des militaires de la région et du camp Valcartier, nous avons eu 39 militaires hospitalisés pendant une épidémie caractérisée par un syndrome grippal qui a envahi la population en uniforme du 28 mars au 23 avril.

Nous avions donc l'occasion de suivre une épidémie de grippe dans un segment de population très spécialisé, c'est-à-dire la tranche de 18 à 40 ans, de sexe mâle, qui vit on contact très rapproché, à priori en parfaite santé et sous traitement hospitalier. Puis, après avoir isolé et identifié l'agent de la maladie dans cette épidémie, par comparaison avec les autres épidémies rapportées, on peut suivre l'évolution de la maladie chez les individus; c'est-à-dire le syndrome à l'admission, la durée, la réponse aux antibiotiques ou autres traitements et les complications.

MATÉRIEL

Chez nos patients nous avons prélevé des gargarismes pour isolement de l'agent de l'influenza lorsque le début de la maladie ne remontait pas à plus de 3 jours.

En même temps un échantillon de sang pour sérum (de phase aiguë) fut prélevé le jour de l'admission, ainsi que 14 jours plus tard au minimum, un sérum de phase convalescente. Ici il faut noter que les patients étaient déjà, au temps du prélevé du sérum convalescent, renvoyés de l'hôpital, retournés à leurs unités et quelques uns déjà dans d'autres parties du Canada. On obtint 37 paires de sérums, dont 30 hospitalisés et 7 à domicile.

MÉTHODES

L'isolement du virus fut fait à partir de liquides de gargarismes traités avec 1000 unités de pénicilline et 1000 mcg. de streptomycine; on inocula des œufs embryonnés de 7-11 jours par voie amniotique en deux passages successifs, puis en passage allantoique. Ce liquide allantoique fut titré pour son pouvoir d'hémagglutination de globules rouges de poule et de cobaye selon la technique décrite en 1941 par McLelland, Hare et Hirst.

L'identification du virus et de son type est fait par la neutralisation avec des antisérums spécifiques fournis par C.M.R.L. par le test d'inhibition d'hémagglutination.

L'épreuve de la fixation du complément est faite selon une modification locale, en volumes de la méthode Kolmer-Boermer utilisant 18 heures de réfrigération. Les sérums aigus et convalescents inactivés à 56° C. pour 30 minutes avant l'épreuve sont dilués de moitié en moitié en série.

Pour les dix premiers cas où nous avions les sérums aigus et convalescents nous avons fait le titrage d'anticorps sériques par fixation du complément avec les antigènes suivants: Influenza A; Influenza B; Adenovirus R1-67; Hémadsorption I; Hémadsorption II.

Ensuite le titrage s'est fait seulement contre les antigènes de l'influenza types A et B.

La bactériologie du pharynx fut faite dans 15 cas seulement.

La symptomatologie à l'admission ainsi que l'évolution furent relevées des dossiers de 30 militaires encore stationnés dans la région de Québec au moment du relevé.

Observations

1. Admissions pendant l'épidémie:

Les admissions débutèrent brusquement dès la première semaine (28 mars) avec 16 cas puis il y eut par semaine 10, 9, et 4 cas jusqu'au 23 avril alors que les admissions cessèrent brusquement. (Tableau I.)

TABLEAU I.—INFLUENZA 1959. HÔPITAL STE-FOY. ADMISSIONS PAR TYPES

Semaines	*Type A*	*Type B*	*Un seul sérum type non-classifié*	*Total*
28 mars - 3 avril	9	3	4	16
4 avril - 10 avril	2	6	2	10
11 avril - 17 avril	5	2	2	9
18 avril - 25 avril	2	1	1	4
Total.....	18	12	9	39

Sérologie

2. Epreuve de Fixation du Complément sur les 37 sérums en paires:

Dans 22 cas on trouva une augmentation du titre d'anticorps à l'influenza type A. (Tableau II.)

TABLEAU II.—TITRES D'ANTICORPS SÉRIQUES CONTRE L'INFLUENZA A.* MILITAIRES. HÔPITAL STE-FOY

Noms	*1er sérum*	*2iè sérum*
G.G.	5	480
L.J.	10	80
M.F.	40	60
O.J.	5	30
S.L.	<10	60
B.J.	<10	320
C.V.	20	160
H.J.	10	80
T.Y.	10	320
A.M.	20	320
B.J.	10	40
J.J.	10	120
M.C.	40	160
A.J.	<10	320
G.H.	10	80
M.J.	10	80
D.J.	<10	640
L.R.	120	160
M.A.	<10	640
D.J.	<10	80
B.J.	<10	320
N.J.	<10	80

*Titres exprimés comme la réciproque de la dernière dilution du sérum qui ne présente pas d'hémolyse.

A remarquer que dans 20/22 cas, soit 90.9%, il y a augmentation d'anticorps de 4 fois ou plus, ce qui représente une montée significative.

Dans les 12 autres paires de sérum on trouva une augmentation du titre d'anticorps à l'influenza type B. (Voir tableau III.)

Douze des quinze cas, soit 80.5%, montrent une augmentation de 4 fois ou plus. Les 3 autres présentent des titres élevés dans le sérum de phase aiguë. Il peut être que les premiers sérums furent prélevés plusieurs jours après le début de la maladie.

En plus, avec les 10 premières paires de sérum on fit l'épreuve de fixation du complément avec les antigènes Adénovirus R1-67, Hémadsorption I, Hémadsorption II, afin de vérifier si nous n'étions pas en présence d'un parainfluenza comme dans l'Ontario. Il n'y eut aucune montée d'anticorps avec ces antigènes et on ne poursuivit pas l'investigation dans cette direction.

On fit l'isolement du virus de l'influenza dans deux cas seulement et les souches isolées présentaient des titres d'hémagglutination de 1:1024 et 1:128, après deux passages dans l'amnion et un passage allantoique.

Au test d'Inhibition d'hémagglutination les deux souches étaients apparentées de près à la souche A/Singapore (Asian).

Dans les quelques cas où on essaya d'isoler du virus des gargarismes de patients, sérologiquement prouvés du type B, on n'eut aucun succès.

Enfin au début de l'épidémie on fit la bactériologie de prélèvements pharyngés. On ne releva que les prélèvements positifs sur les 15 premiers où on en trouva six positifs. Ces prélèvements positifs présentaient une flore mixte en combinaisons variables de streptocoque hemolytique, hemophilus, N. catarrhalis et staphylocoque albus. Mais il était évident que ces microbes n'étaient pas l'agent pathegène causal du syndrome. D'après les rapports sérologiques et les rapports de neutralisation, nous étions en présence d'une épidémie simultanée à deux souches du virus de l'influenza, le A et le B.

TABLEAU III.—TITRES D'ANTICORPS SÉRIQUES CONTRE L'INFLUENZA B.* MILITAIRES. HÔPITAL STE-FOY

Noms	*1er sérum*	*2iè sérum*
D.J.	160	280
D.G.	<10	20
V.J.	10	320
C.A.	<10	320
L.L.	<10	160
L.E.	10	240
L.C.	320	640
D.R.	<10	640
D.J.	20	280
B.J.	15	160
L.C.	15	80
R.J.	20	80
R.J.	80	160
P.J.	<10	160
L.A.	<10	40

*Titres exprimés comme la réciproque de la dernière dilution du sérum qui ne présente pas d'hémolyse.

Cliniquement, puisque tous les malades présentaient le syndrome à peu près classique décrit dans tous les bouquins, de début soudain, brutal, avec fièvre, frissons, malaises, etc., à admission des malades il n'y avait qu'un seul diagnostic présomptif à faire: "Syndrome grippal".

Cependant, en retrospecte par le relevé des histoires de cas, il nous est possible de trier les symptômes d'admission de l'influenza type A de ceux de l'influenza type B par ordre de fréquence. Nous avons retracé 18 dossiers de patients qui ont eu le type A et 12 dossiers de ceux qui ont eu le type B.

Il faut remarquer que cette série n'est pas grande, donc sujette à erreur.

Les symptômes présentés à l'admisison par les malades de chacun des deux groupes sont énumérés avec leur fréquence exprimée en pourcentages dans le tableau IV.

Il faut remarquer d'abord que la température moyenne est plus élevée avec le type A, la céphalée, les malaises généraux, la toux et les frissons sont plus fréquents. Ceci est une constatation facile en

TABLEAU IV.—SYMPTÔMES À L'ADMISSION À L'HÔPITAL ET LEUR FRÉQUENCE.
INFLUENZA A = 18 CAS.
INFLUENZA B = 12 CAS.

	Type A	*Type B*
Temp. moyenne	102.0 (100 à 104)	100.1 (99 à 102)
Frissons	77%	33%
Malaises généraux	94%	66%
Cephalee	72%	58%
Toux	66%	50%
Pharyngite	16%	25%
Coryza	11%	25%
Prostration	11%	16%
Diaphorèse	11%	16%
Signes physiques pulmonaires	28%	8%
Radiographie positive	0%	0%
Globules blancs < 6000	55%	40%
Sed. gl. < 10 mm.	62%	20%

retrospecte mais inutile devant un cas individuel. Pour ce qui est des autres symptômes, les différences ne sont probablement pas assez appréciables pour être de grande valeur.

Les signes physiques pulmonaires à la percussion et à l'auscultation furent positifs surtout chez les grippés du type A, mais ne correspondaient qu'à des congestions minimes puisque la radiographie pulmonaire ne releva aucun cas de pneumonie ni de broncho-pneumonie dans les deux groupes.

Les constatations de laboratoire sur le décompte des cellules blanches ne démontrent pas une relation significative entre les décomptes et le type de virus, ni de même le résultat de la sédimentation globulaire.

En somme on peut dire que le malade grippé du type de virus A semblait être un malade plus aigu que celui du type B.

La durée moyenne de l'hospitalisation chez ceux infectés du type A fut de 6.4 jours, ceux du type B de 5.4 jours.

Des 18 patients affligés du type A, 15 reçurent des antibiotiques de diverses espèces, du début à la fin de leur hospitalisation et furent hospitalisés 6.4 jours; par contraste, les trois qui ne rçurent qu'un traitement symptômatique demeurèrent à l'hôpital 6.6 jours.

Du groupe des grippés au type B, ceux qui reçurent des antibiotiques séjournèrent 5.4 jours à l'hôpital et celui avec le traitement symptômatique 3.5 jours.

C'est donc dire qu'il n'y eut dans ce groupe aucune différence dans la durée de temps d'hospitalisation entre ceux traités aux antibiotiques et ceux qui reçurent une thérapeutique symptômatique.

Il n'y eut aucune complication pulmonaire ni neurologique par rapport aux groupes comparables de l'épidémie de 1957.[4, 5, 6]

Cependant, il existe quelques questions qu'il faut se demander au sujet de cette absence de complications. (1) Est-ce que l'absence de complications ne serait pas due aux antibiotiques ou, si l'on veut, est-ce qu'il y aurait eu des complications pulmonaires ou neurologiques sans ce traitement? (2) Est-ce simplement que ce groupe de patients appartient tout simplement à la catégorie optima en âge qui, quoique très susceptible à l'influenza Woodall *et al*,[3] Bashore *et al*,[6] est le moins susceptible aux complications par contraste avec les enfants et les vieillards? (Fry[1]). (3) Normalement le taux de complications pendant les épidémies d'influenza est plus élevé dans les épidémies qui surviennent à la saison froide qu'à l'automne. Est-ce que l'agent pathogène aurait perdu de sa pathogénicité, en fin de saison froide et en fin d'épidémie? Nous croyons que les trois facteurs ont contribué à cette absence d'accidents.

RÉSUMÉ

La région militaire de Québec a subi, au printemps 1959, une épidémie mixte d'influenza type A et type B simultanés en proportions de 3 contre 2 respectivement, telle qu'observée en Angleterre. Après contrôle sérologique aucun cas d'hémadsorption ou parainfluenza ne fut décelé dans notre groupe de 39 militaires hospitalisés à l'Hôpital Ste-Foy de Québec, tel que rapportés par Labzoffsky et cotravailleurs en Ontario.

Cliniquement il n'y a pas à faire de diagnostic du type d'influenza à l'admission du patient, quoiqu'en retrospecte les patients sérologiquement prouvés avoir été des influenza type A semblent avoir présenté un aspect clinique plus sérieusement atteint. L'évolution et la durée d'hospitalisation sont sensiblement les mêmes pour les deux types.

Dans cette série de 39 cas il n'y eut aucune complication pneumonique ou neurologique.

REFERENCES

1. FRY, J.: *Brit. M. J.*, **2**: 135, 1959.
2. LABZOFFSKY, N. A. *et al.*: *Canad. M. A. J.*, **81**: 110, 1959.
3. WOODALL, J., ROWSON, K. E. ET MCDONALD, J. C.: *Brit. M. J.*, **2**: 1316, 1958.
4. OSWALD, N. C., SHOOTER, R. A. ET CURWEN, M. P.: *Ibid.*, **2**: 1305, 1958.
5. GILROY, J.: *Ibid.*, **2**: 997, 1957.
6. BASHORE, S. *et al.*: *U.S. Armed Forces M. J.*, **9**: 1569, 1958.

SUMMARY

The 1959 Influenza Epidemic among Military Personnel Treated at Hôpital Ste-Foy, Quebec.

In the spring of 1959 the military personnel in the sector of Camp Valcartier, Quebec, were hit by an influenza epidemic. From March 28 to April 23, 39 soldiers were treated at Hôpital Ste-Foy. Serological and epidemiological investigations revealed the influenza to be of types A and B, in the proportion of 3 to 2. This was identical with the epidemic in Great Britain but unlike that of neighbouring Ontario where antigenic reactions with hemadsorption and para-influenza were positive.

Clinically, the patients presented a "grippe syndrome", without appreciable difference between the two serological types A and B. However, in retrospect, those with influenza type A seemed to have suffered a little more than those with type B. The average hospital stay was about six days. Progress of the disease and length of hospitalization were more or less identical in both types, and antibiotics did not seem to change the course. In this series of 39 cases there were no pulmonary or neurological complications and there were no deaths. S.W.A.G.

PRESCRIPTION INSURANCE

A pilot prescription insurance plan has completed eight months of successful operation in San Jose, California.

It is a joint venture of the California Pharmaceutical Association, the local Bricklayer's Union and the Pacific National Life Assurance Co.; co-operating with it is the Santa Clara County Medical Society. Covered are 600 union members and their families.

A monthly premium of $1 per member is paid to the insurance company through the union health and welfare fund. Prescriptions are filled by local Pharmaceutical Association members, with billing and supervision handled by a special agency, Prescription Service, Inc.; the pharmacist is paid by the insurance company. Pacific National officials stated that it would require the experience of several other pilot plans before prescription insurance could be offered generally—*MD*, May 1960.

DEPRESSIVE STATES AND DRUGS—III. USE OF METHYLPHENIDATE (RITALIN) IN OPEN PSYCHIATRIC SETTINGS AND IN OFFICE PRACTICE*

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THIS PAPER is another in a series[23-25] on depressive states and drugs. While our previous papers dealt with the new agents, imipramine (Tofranil)[23] and phenalzine (Nardil)[24] and made some comments on depressive states[25] respectively, the present paper is an attempt to shed new light on the action of a relatively older and well-established stimulant.

In all of this, as in the work with tranquillizers, the concept of the psychodynamic action,[26-30] and of the specific pharmacological, and non-specific therapeutic,[26, 28-30] action of psychopharmacological agents, as pioneered by Sarwer-Foner and some of his co-workers, was invoked. In addition, some of the clarifications on the placebo effects,[1, 14, 15, 22, 36, 37] and the importance attached to transference phenomena[23, 26-31, 33] induced by the administration of drugs, helped give impetus to a sophisticated approach to the study of drug effects in psychiatry, and is reflected in this work as well.

Methylphenidate (Ritalin§), a piperidine derivative, is a cephalotropic amine, a central nervous system stimulant, and has been used as a stimulator of motor and psychomotor activity, as an elevator of mood and as an "antidepressant".[2-8, 17, 19] Biochemical properties have been described elsewhere.[2, 13] It has been noted by several authors[2, 11, 19] that the effects of methylphenidate lie somewhere between those of caffeine and those of the amphetamines. It seems to have the particular advantage of being relatively free from unpleasant side effects. Its physiological effects seem to offer few contraindications to its use. In respect of psychopharmacological effects, severe agitation and anxiety can be considered as relative contraindications to the use of methylphenidate.[10] Since 1954, methylphenidate has been used as a central nervous stimulant, and was found by several investigators[3, 11, 13, 20, 35] to be an effective drug in the treatment of depressive states.

The purpose of this study was to re-evaluate the stimulant or antidepressant properties of methylphenidate and to attempt to differentiate clearly between pharmacological effects as they appeared (that is to say, the pharmacological profile of the drug) and its effect on target symptoms (that is, those symptoms which might be modifiable through the physiological action of the drug). The assessment of these factors was separated from the evaluation of the drug effects on the general therapeutic situation, and from those effects, non-specific as to drug, that can be produced by transference.[26, 28-31, 33]

Agitated depressions were not included in this study to obviate the possibility of an exacerbation of agitation and anxiety in some patients.

PATIENTS, MATERIALS AND METHODS

In a two-year study, 159 patients were treated by methylphenidate. Of these, 121 are the subject of this communication, while 38 patients were dropped from the study. Sixteen of these were dropped because they had received electroconvulsive therapy (E.C.T.) in combination with methylphenidate. Twenty-two other patients, who received other antidepressants in combination with or before receiving methylphenidate, were also excluded from this series, because our research design precluded combining the drug with other organic treatment modalities. The 121 patients included in the study received no other medication but methylphenidate, with the exception of those patients who needed night-time sedation. This consisted of 3 grains of a combination of equal parts of secobarbital and amobarbital or 1½ grains of secobarbital according to the degree and pattern of their insomnia.

Treatment Setting

Twenty-five patients were treated in the in-patient service of the psychiatric department of the Jewish General Hospital. This is an open psychiatric unit of psychoanalytic orientation. The treatment philosophy is based on the use of psychotherapy along with whatever organic adjuvants may be necessary.[34]

This setting offered good facilities for individual psychotherapy by residents, under the direct supervision of senior psychiatrists, all of whom are university teachers and qualified psychoanalysts, or undergoing psychoanalytic training. It offers good observation of the patient by the residents and nursing staff. A ratio of one nurse to two patients permits intensive nursing care and very good observation of the daily behaviour of the patients. Good psychological services, with testing of all patients as required and the use of two social service workers on the wards, exists. This milieu permits good levels of observation and intensive psychodynamic study.

The Physiological Effects

The pharmacological profile of the drug, i.e. its clinically observed physiological effects, was sought. The amount of time needed for them to appear after medication was begun was observed. Changes in weight, appetite, blood pressure, sleep patterns, pulse and temperature were observed. Laboratory

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tests for toxicity (urine analysis, hemogram, blood cholesterol, alkaline phosphatase, fasting blood sugar) were periodically performed. The psychodynamic and mental status observations were made independently by residents, physicians, supervising psychiatrists and nursing staff.

Psychiatric Drug Treatment Clinic[16]

Forty-four patients were studied in the psychiatic drug treatment clinic of the Jewish General Hospital and in the general psychiatric outpatient department clinic by members of the drug treatment team. The clinic was organized to handle selected patients who might benefit from a supportive relationship and from the use of drugs to attack specific "target symptoms". Patients were selected for this facility on the basis of either a "magic typifying attitude" towards medicine and physicians, or an orientation towards a classic doctor-patient model. Patients are seen once weekly in a short (15-minute) supportive interview during which a drug designed to control target symptoms is administered. An internist follows their physical well-being. This setting offers a group of well-known and specially selected patients up to six months of drug and supportive psychotherapy.[34]

Office Practice

Fifty-two were patients in the office practice of two of the investigators (A.B.K. and E.K.K.). In the latter more intensive psychodynamic observation, by fully qualified psychiatrists, was available. The physiological data obtained on each patient, however, were not as complete as those obtained from the hospital group.

With the exception of those cases suffering from agitated depressions or severe suicidal depressions, who were excluded from this series, patients were selected at random.

The doses of orally administered methylphenidate ranged from 10 to 60 mg. daily in divided doses of 10 mg. once a day to 20 mg. thrice daily, given after meals.

Before the use of the drug each inpatient underwent a thorough physical examination, special laboratory tests, recording of weight, pulse, blood pressure and respiration, and one or more psychiatric interviews. Mental status, clinical diagnosis, psychodynamic evaluation, and interpretation of the psychopathology were recorded. Particular attention was paid to data pertaining to mood and affect, motor and psychomotor activity, work capacity, somatic complaints, feelings of fatigue, the psychodynamic assessment of the presence and depth of guilt feelings, of ideas of personal worthlessness, of suicidal thoughts, of the capacity to relate to external objects and to interpersonal relations, especially in terms of anger, hostility, and the ability to establish a working relationship with the psychotherapist. Changes in major symptomatology, and appearance of the psychopharmacological profile of the drug, in terms of the above-mentioned systems, were recorded. Assessment of the therapeutic results was arrived at by combining data from the changes of the major symptoms, of how the patient felt ("helped"; "not helped"; "made worse") and the psychiatric staff assessment. Grades of improvement were rated as "much improved", "improved" ("helped"), "no change" ("not helped"), or "made worse".

TABLE I.—ORIENTING DATA ON 121 PATIENTS SEX, AGE, DOSE AND DURATION OF TREATMENT

Sex: 29 female, 92 male

Age: Range 22 to 80 years
Average 48 years
Average for inpatients —58 years
" " office patients—47 years
" " drug clinic —44 years

Daily dose: Range 10 to 60 mg.
Average inpatients —32.8 mg.
" office patients—34.3 mg.
" drug clinic —34.1 mg.

Duration of treatment range:—2 to 317 days.
Average for inpatients —38 days*
" " drug clinic patients —134 days
" " office patients —115 days

*Some were continued on an outpatient department basis, but were not included in this study.

OBSERVATIONS AND RESULTS

Table I summarizes the data as to sex, age, dose, and duration of treatment. All patients treated in the above settings presented some depressive symptomatology, regardless of the diagnostic categories. They were given the drug in the hope that it would ameliorate various aspects of the depressive symptomatology.

TABLE II.—PATIENT STATUS AND IMPROVEMENT RATES

Patient status	*Number of patients*	*Much improved*	*Improved ("helped")*	*No therapeutic change*	*Made worse*
Inpatients	25	16	3	5	1
Outpatients	44	22	9	9	4
Office patients	52	33	10	7	2
Total	121	71	22	21	7

"Much improved" and "improved": 93 patients = 77%.

Table II shows the rates of improvement in the clinical conditions of the various groups, and Table III the rates of improvement in terms of the different diagnostic categories.

Physiological Changes

These were systematically recorded only in the inpatient group. Blood pressure, pulse, temperature, respiration, and biochemical laboratory findings were not significantly changed in the majority of patients when they were recorded.

Appetite and Weight

Methylphenidate taken in the doses mentioned, *after meals*, seemed to have no unfavourable effect on the appetite. A weight increase of more than 5 lb. was recorded in the first five weeks in 74% of

TABLE III.—DIAGNOSES AND IMPROVEMENT RATES

Diagnosis	*Number of patients*	*Much improved*	*Improved ("helped")*	*No therapeutic change*	*Made worse*
Manic-depressive reaction, depressed	23	15	4	1	3
Depressive reactions	29	18	5	5	1
Depressive reactions of the aged without organic brain syndromes	17	11	3	3	0
Depressive reactions of the aged with organic brain syndromes	14	6	2	4	2
Depressive reaction in the involutional period	12	7	3	2	0
Schizophrenia, schizoaffective type with depressive affect	12	6	2	3	1
Psychoneuroses (anxiety). Phobic, obsessive-compulsive, with depressive features	8	4	2	2	0
Character disorders with depressive affect	6	4	1	1	0
Total	121	71	22	21	7

"Much improved" + "improved": 93 patients = 77%.

the patients. A weight increase of less than 5 lb. was seen in 18% of the patients (this is not significantly different from that seen with hospitalization as milieu care, in this setting). A weight loss of up to 5 lb. in 8% of the cases was recorded. The gain in weight correlated closely with improvement in other aspects of depressive psychopathology and represented a renewed ability to seek new object relationships. An interest in food, hunger and appetite are therefore again seen in the patient. Exceptions, however, were noted in those patients in whom mild exacerbations of depressive mood were accompanied by compulsive overeating with resultant gain in weight.

When taken not later than 4 p.m., methylphenidate seemed to have no adverse effect in terms of increasing insomnia.

Change in Mental Status

(a) *Motor activity.*—The most constant significant change observed, once the pharmacological profile of methylphenidate was established, was in motor activity, i.e. mobility and bodily movements. Eighty-six per cent of patients with motor retardation showed a marked increase in motor activity. These cases represented patients with neurotic depressions without true motor retardation but with considerably decreased activity patterns, as well as manic-depressive patients in the depressed phase with diminished motor activity. Schizophrenic patients with apathy showed the least improvement in their motor activity. Many of these patients, nevertheless, both reported and showed some improvement in drive, interest and ambition. This was seen from the character of their speech and mental content and in their ability to relate to their therapist and to the significant people in their milieu. The other groups including the geriatric cases, involutional depressions, neuroses and character disorders responded with moderate degrees of improvement (between the first group and the apathetic schizophrenic patients).

(b) *Mood.*—Methylphenidate seemed a very potent mood stimulant. Improvement in mood was seen in 81% of the cases. Patients were less depressed, less apathetic and better able to relate to others and to their own visualizations of their lives, and were more outgoing. One patient compared it with a glass of whisky, and stated that it produced a state of definite euphoria. The majority of patients responded with a sense of relative well-being and with increased satisfaction with themselves and the world. One patient, a 52-year-old woman with a long history of manic-depressive psychosis, with several manic-depressive episodes, developed a manic attack after taking 10 mg. twice daily for three days. The same patient had previously developed manic episodes after one E.C.T., and, on another occasion, after one tablet of Premarin® 0.3 mg.

(c) *Psychomotor activity.*—If all groups of patients were considered, an increase in psychomotor activity, particularly marked as to speech, was seen in 62% of the cases. This increase in verbal communicativeness helped the patient relate to the therapist and to the people in his environment. Facilitation of the expression of anger,[12] and a resultant relief of depression, with all the concomitants of guilt and self-depreciation, were seen in most cases as psychotherapy progressed.

Patient's Level of Depression as a Guide to Treatment

Methylphenidate is a stimulating drug. It was most useful with those patients who had reached the following clinical level in their depression. They had formed a positive transference and therefore considered the physician as a helpful, beneficial person, and they showed regression to a level of increased sleep, fatigue, lack of "pep", some apathy, and complained of a dearth of energy. Within this context these patients were now beginning to seek gratifying ("good") object relationships. Methylphenidate, *given at this point,* enabled the patients who were ready to form new object relationships, as demonstrated in the transference, to perceive an increase of necessary "pep". This offered an impetus to overcome their regressions. Such patients felt the physiological effects of the drug as direct evidence of the physician's power to help them have the renewed energy to live again and to form new object relationships.

On theoretical grounds a relative contraindication may exist to stimulating in this manner suicidal

patients who are apathetic and psychomotorally retarded, without consideration of the transference situation. Giving a stimulating drug to such patients could well increase their already barely tolerable aggressive impulses and could result in an increase in the available energy and drive, sufficient to facilitate discharge of their aggression. Patients who are agitated, who show that they can barely control the threatened outburst of the great quantity of their aggressive energies (either directed externally or against themselves), should not be given a stimulating agent. Such patients perceive the pharmacological profile as increasing the strength of their inner impulsivity, which they feel they can barely control as it is. These patients are best managed by either electric shock or by energy-reducing neuroleptic agents.

E.C.T. and Methylphenidate

Observations were also made on the combined use of electroconvulsive therapy (E.C.T.) and methylphenidate. Although not part of this project because of our research design, some comments are offered on the observations of the 16 patients who receive E.C.T. combined with the adjuvant use of methylphenidate. Favourable changes were noted, especially during that period of time before the therapeutic effects of the series of E.C.T. had time to accumulate. This was usually before the third or fourth E.C.T. (E.C.T. given three times weekly). A favourable response was seen on E.C.T.-free days, in the sense that the patients felt more energetic and less apathetic.

Other Antidepressants and Methylphenidate

When other antidepressant drugs had failed, or before they had started to take effect (in the other 22 patients dropped from this series), methylphenidate was sometimes useful in bridging the first one to three weeks in terms of giving the patient more energy or more "pep". The patients were then offered a physiological agent, the pharmacological effects of which they could perceive as increasing their energy and outgoingness. It is our impression that patients who take imipramine, in particular, showed a shorter lag than usual in response to that drug when a combination of imipramine and methylphenidate was given. In the case of an acute exacerbation of depression, one of the authors (A.B.K.) found that 20 mg. of methylphenidate, intravenously, helped the patient verbalize with greater facility the current problem related to the depressive affect. This in essence was an abreactive technique used within the transference situation.[12]

Patients with deep-seated dependency needs, however, sometimes attempt to manipulate the therapist into the role of the giver of the "magic goodness" for rather minor difficulties that could easily be handled in the ordinary psychotherapeutic context. The authors, therefore, do not feel that the parenteral use of methylphenidate as a "quick relief" is indicated except in special cases. Similarly, when a patient is very severely depressed, the giving of the drug intravenously, or with expectation of quick relief, may merely make the patient feel that his inability to justify fully the physician's expectations is just another expression of his own worthlessness. If the doctor expects him to do well on this drug, and he does not, it is because he just "isn't any good", and it is "all his fault for not trying hard enough." Here the lack of an immediate therapeutic response is integrated by the patient into his own self-critical, self-punitive, depressive illness.[23, 28, 29]

Side Effects

Patients were free of side effects in 72% of the cases. Twenty-one per cent had mild side effects but they were not incapacitating or too disturbing. These consisted of increased tremor of the extremities, cardiac palpitations, a feeling of "butterflies in the stomach", and mild elevations of blood pressure of 5 to 10 mm. Hg.

Seven per cent showed an increase in their levels of anxiety or an increase in their psychomotor activity, even to the level of increased agitation. Only these latter categories of side effects were particularly disturbing to the patients. Most of these patients had latently agitated depressions, or were schizophrenic patients with a great deal of barely controlled aggressiveness and irritability.

None of the cases seen in this series developed a dependency on or addiction to methylphenidate.[21] Some patients showed the type of somatic complaint, concern over body image, and concern over "what are you doing to my body" that is a transference response, described in an earlier work of Sarwer-Foner.[26, 28-31, 33]

DISCUSSION

Our therapeutic results were strikingly similar to those found by several other investigators.[3, 11, 13, 20, 35] The particular composition of our group of patients revealed some interesting differences and are suggestive of certain important conclusions. Table I shows that the drug was slightly more effective in office practice and in the inpatient group and least effective in the outpatient group. This was particularly noted in so far as the "much improved" category is concerned. The other suggested difference was seen in the length and duration of treatment, which was longest in the outpatient group — 134 days; shorter in office practice — 115 days; and shortest in the inpatient group — 38 days. The majority of the latter group, of course, continued to receive medication after discharge from hospital; the 38 days therefore is an artifact. It represents only that period of hospitalization necessary to reintegrate the patient's ego-defences sufficiently to permit his return to the community.[34]

The differences in improvement rates and duration of treatment shown above were not due to

differences in the specific drug effects but rather to different amounts and intensities of psychotherapeutic interaction in the various groups of patients, and also to differences in the approaches used to attempt to master the problem in the patient — ego-supportive and integrative psychotherapy in a hospital setting for the in-patient group; mainly supportive psychotherapy with drug therapy for selected groups of largely oral, passive, dependent and magically typifying patients in the psychiatric drug clinic and outpatient group; more intensive psychotherapy with the hope of attaining some level of insight in a group composed largely of neurotic depressions, in office practice. The relative amount of attention offered to patients and what the patients felt they were receiving in terms of "oral givingness" to replace their lost love objects were important in this regard.

We noticed that outpatients were especially sensitive to any attempts on the part of the therapist to replace a sympathetic and meaningful relationship by perfunctory dispensation of drugs.[23] This was true even if the sessions were of relatively short duration (20 minutes per week). If the patient did not feel the basic interest of the therapist, feelings of rejection and abandonment occurred. This was clinically expressed either by verbal statements of unhappiness, but more often by somatization, demands for more treatment, or simply more symptoms (a worsening of the condition). It is as though these patients were saying, "Doctor, you are not giving me enough, give me more.[23, 33] Many patients came to identify the personality of the "good giving doctor" with the capacity of dispensing a "good giving drug". It is as though they feel that the doctor because of his benevolence is giving them the "goodness" that drives out the "badness".[32] In this study, the drug was used as an adjuvant to reduce the patient's suffering, particularly in terms of energy dearth, and the feeling that he could not control his symptoms. By preference, it was used in the early phases of his illness (particularly with the office patients), while accenting the need for the patient to attempt to handle his illness through an increased understanding of those feelings producing his mourning and depression. This approach, it was felt, offered a better solution to his fundamental problem than drug therapy alone.

Although Table II does not lend itself to statistical analysis because of the relatively small number of patients in the various categories, the following conclusions are nevertheless delineated. Patients with depressions responded better to the medication and a supportive psychotherapeutic approach than patients suffering from schizophrenic or from organic illnesses with depressive symptomatology. Although the physiological effects of the methylphenidate medication are largely the same in all the patients (i.e. all the patients show the same pharmacological profile in response to the drug), it was therapeutically not nearly as beneficial in the last-mentioned groups. Many factors involved in relationship therapy and the meaning, in the transference,[29-31] of what is done, especially in response to energy shifts and the stimulatory effects of the drug, are probably of great importance here.

Our findings confirmed many of the findings of authors[3, 11, 13, 20, 35] who earlier had demonstrated the effectiveness of methylphenidate in various depressive states. Our evidence, however, in contradistinction to the conclusions of some of these authors, suggests that the mode of action of drugs in depressive states is far more complicated than suggested by them. In the case of methylphenidate its effects are not just the sum total of its actions on mood and motor and psychomotor activity. By facilitating the greater availability of energy for speech, it can promote desirable communication between patient and doctor.[12] It thus becomes a valuable adjuvant, both in the psychotherapy of depression and as a motor and mood and psychomotor stimulator. When used with minimal or no psychotherapeutic interaction, the effectiveness of the drug in helping patients overcome depressive mourning, feelings of personal worthlessness or anger turned against the self, is less convincing, although its pharmacological profile was always present if the drug was given in adequate dosage. On the other hand, if the type of patient already referred to is treated only with psychotherapy of short periods (once a week), many of them become frustrated by their energy dearth, by their inability to express themselves and by inhibition in their interpersonal relations. They come to equate these with lack of progress, thus increasing their feeling of hopelessness. This helps confirm their already established pattern of internalized anger, guilt, and depression. We feel that methylphenidate is an effective agent in breaking this cycle if given to the properly selected patient, especially at the right time and cycle of his illness. Its action in helping to channel energy into motor patterns is helpful in suggesting to the patient that he now has the necessary energy to form more meaningful human contacts. When the above occurs in terms of a good transference relationship, the facilitation of verbalization helps the patient exteriorize himself and gives meaning to his capacity for other externalizations, both of motor energy and of externalized interest. The use of this drug in such situations helps give the patient a sense of therapeutic movement and increases his sense of optimism and hope.

Particularly important with methylphenidate is the fact that there is no appreciable time lag in the appearance of its pharmacological effect ("pharmacological profile") and its therapeutic effect. This is in contradistinction to what has been reported of some of the other antidepressants. With this agent a patient perceives biologically that things are "moving" and that energy is increased. This feeling is integrated by the patient in an ego-sup-

portive way if it is done in the context of a positive transference relationship. The patient associates it with the therapist's intervention, with the "goodness" given by the doctor to drive out the "badness". This often establishes or strengthens positive transference feelings.

The immediate increase in concentration and alertness facilitates recapture of lost fragments of memory and in some cases helps capacity for insight. As seen above, the drug's psychopharmacological profile and the psychotherapeutic effects emanating from it are integrated by the patient in a complex manner, understanding of which helps us to treat the depressed patient.

SUMMARY

Over a two-year period, 159 patients were treated by methylphenidate (Ritalin) and 121 of them are the subject of this report. These patients suffered from various depressive states and were treated by doses of 10 to 60 mg. of methylphenidate daily, in one to three divided doses, for an average length of approximately three months.

Twenty-five of these were inpatients, 44 were outpatients and 52 were patients in office practice. All patients were given psychotherapy concomitantly; office patients generally received more, inpatients less, and outpatients the least psychotherapy, in terms of amount of time offered and the intensity of the relationship.

On this regimen, 72% of the inpatients, 70% of the outpatients and 82% of the office patients showed improvement in the depressive symptomatology. This improvement occurred rapidly and in direct relationship to the pharmacological profile of the drug. It always occurred in terms of what the "pharmacological profile" meant to the patient in terms of his total situation. His transference relationship with the therapist at the time was particularly involved in the meaning given by the patient to the pharmacological profile of the drug.[29-31]

As to changes in symptomatology, the greatest improvement was seen in motor activity (86%), mood (81%) and psychomotor activity (62%), in that order. In the latter case, facilitation in speech, through the increase of energy available for this, resulted in improved verbalization of anger and hostility with very evident relief of depressive and self-punitive feelings in the patient. Increased alertness and an improved ability to concentrate helped in some cases by facilitating memory recall. This made the patient feel that the medication was changing him and restoring his capabilities. The pharmacological profile of the drug is integrated by most patients as something representing the "goodness" offered by the doctor to drive out the "badness" that they felt to be in them. It was thus helpful in establishing or confirming a positive transference with the therapist.

Those patients most inhibited in their expression of anger and the depressed group of manic-depressive patients seemed to benefit most readily in the therapeutic sense. Next in order were patients suffering from neurotic depressions. Patients with latently agitated depressions and those with neurotic depressions associated with marked degrees of anxiety translated into somatic sources often tended to become more anxious in response to the physiological effects of the drug.

Methylphenidate was also a useful adjuvant in an additional 16 patients in whom it was combined with electroconvulsive therapy and in 22 other patients in whom its use was combined with other antidepressant drugs which have a time lag before their therapeutic action is noted.

Side effects of methylphenidate were seen in 21% of the patients and were negligible in the majority of them. Only 7% of cases had *markedly* increased anxiety, palpitations or increased agitation.

In conclusion, methylphenidate is a most useful adjuvant in treatment of various depressive states, provided that the concept of patient selection, the timing of its use, and the proper technique in using supportive psychotherapy are considered.

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REFERENCES

1. BEECHER, H. K.: *J. A. M. A.*, **159**: 1602, 1955.
2. CARTER, C. H. AND MALEY, M. C.: *Dis. Nerv. System*, **18**: 146, 1957.
3. DAVIDOFF, E., BEST, J. L. AND MCPHEETERS, H. L.: *New York J. Med.*, **57**: 1753, 1957.
4. DRASSDO, A. AND SCHMIDT, M.: *Med. Monatsschr.*, **8**: 393, 1954.
5. FERGUSON, J. T.: *Ann. New York Acad. Sc.*, **61**: 101, 1955.
6. FERGUSON, J. T. AND FUNDERBURK, W. H.: *J. A. M. A.*, **160**: 259, 1956.
7. *Idem*: *Ibid.*, **160**: 259, 1956.
8. FERGUSON, J. T. *et al.*: *Ibid.*, **162**: 1303, 1956.
9. FREED, H.: *Am. J. Psychiat.*, **114**: 944, 1958.
10. HARTERT, D. AND BROWNE-MAYERS, A. N.: *J. A. M. A.*, **166**: 1982, 1958.
11. JACOBSON, A.: *M. Ann. District of Columbia*, **25**: 491, 1956.
12. KERENYI, A. B., KORANYI, E. K. AND SARWER-FONER, G. J.: *Canad. M. A. J.*, **80**: 963, 1959.
13. LANDMAN, M. E., PREISIG, R. AND PERLMAN, M.: *J. M. Soc. New Jersey*, **55**: 55, 1958.
14. LASAGNA, L. *et al.*: *Am. J. Med.*, **16**: 770, 1954.
15. LASAGNA, L., VON FELSINGER, J. M. AND BEECHER, H. K.: *J. A. M. A.*, **157**: 1006, 1955.
16. LOWINGER, P., SCHORER, C. AND KNOX, R. S.: Psychological implications of out-patient drug therapy. *In*: Dynamics of psychiatric drug therapy, edited by G. J. Sarwer-Foner, Charles C Thomas, Publisher, Springfield, Ill., 1960, p. 471.
17. MADI, M. L. AND KOVITZ, B.: *Antibiotic Med.*, **3**: 309, 1956.
18. MAXWELL, R. A. *et al.*: *Arch. internat. de pharmacodyn. et de thérap.*, **112**: 26, 1957.
19. MEIER, R., GROSS, F. AND TRIPOD, J.: *Klin. Wchnschr.*, **32**: 445, 1954.
20. NATENSHON, A. L.: *Dis. Nerv. System*, **17**: 392, 1956.
21. RIOUX, B.: Is Ritalin an addiction producing drug? Read at a meeting of the Société Canadienne d'études et de recherches psychiatriques, Montreal, February 1959.
22. ROSENTHAL, D. F.: *Psychol. Bull.*, **52**: 294, 1956.
23. SARWER-FONER, G. J. *et al.*: *Canad. Serv. M. J.*, **15**: 359, 1959.
24. SARWER-FONER, G. J. *et al.*: *Canad. M. A. J.*, **81**: 991, 1959.
25. SARWER-FONER, G. J.: In discussion of Sainz, A., *Ann. New York Acad. Sc.*, **80**: 789, 1959.
26. SARWER-FONER, G. J. AND OGLE, W.: *Canad. M. A. J.*, **73**: 187, 1955.
27. *Idem*: *Canad. Psychiat. A. J.*, **1**: 11, 1956.
28. *Idem*: *Canad. M. A. J.*, **74**: 526, 1956.
29. SARWER-FONER, G. J.: Transference and non-specific drug effects in the use of the tranquillizing drugs in psychiatry and their influence on affect. *In*: Research in affects, Psychiatric Research Report No. 8, American Psychiatric Association, 1957, p. 153.
30. *Idem*: Theoretical aspects of the modes of action of the neuroleptic drugs in schizophrenia, *In*: Psychopharmacology frontiers, edited by N. S. Kline, Little, Brown & Company, Boston, 1959, p. 295.
31. SARWER-FONER, G. J., ed.: Part IV. Transference and counter-transference problems in relationship to drugs. *In*: The dynamics of psychiatric drug therapy, Charles C Thomas, Publisher, Springfield, Ill., 1960, pp. 319-402.
32. SCOTT, W. C. M.: *Ibid.*, pp. 319-321.
33. SARWER-FONER, G. J. AND KORANYI, E. K.: *Canad. M. A. J.*, **77**: 450, 1957.
34. SILVER, A., WILNER, W. AND SARWER-FONER, G. J.: The problem of discharge planning for patients in a psychiatric unit of a general hospital. Read at the third meeting, "Group Without A Name". Boston Research Conference at Massachusetts Mental Health Center, Boston, March 24, 1959 (in press).
35. STIER, C.: *Therapie de Gegenwart*, **94**: 93, 1955.
36. VON FELSINGER, J. M., LASAGNA, L. AND BEECHER, H. K.: *J. A. M. A.*, **157**: 1113, 1955.
37. WOLF, S.: The evaluation of therapeutic agents, American Psychiatric Association Mental Hospital Monograph Series No. 2, January 1957, Washington, D.C.

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SPECIAL ARTICLE

HEALTH PROBLEMS IN THE ARCTIC*

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INTRODUCTION

THE COMMENTS in this paper centre on the thesis that health problems in the Arctic compared with so-called temperate climates, like those of Winnipeg, lie in the field of social and preventive medicine, if the term is used broadly enough to include the impact of our culture on the Arctic natives.

Not all of the health problems of the Arctic will be discussed. Indeed, there are probably many of which the author is not even aware. The practitioners who encounter these problems in their day-to-day work are the doctors and nurses of the Northern Health Service, Department of National Health and Welfare, who are stationed in the Arctic. Comments will also be made on some studies undertaken at the University of Manitoba that had support from the Defence Research Board and from Federal Health Grants.

HYGIENE

One of the features of the Arctic is the presence of permafrost, which has considerable bearing on such important health problems as water supply and sewage disposal. However, the impact of the permafrost on these important matters is modified by the nature of the terrain. In well-drained areas, such as the mountainous terrain of East Baffin Island, or the high gravel river banks of the northern Yukon, the permafrost does not impose such difficulties as it does in the muskeg country of the Arctic plains. Here, in summer, ground water lies in shallow pools and lakes formed on the surface of the impervious frozen mud beneath them. Drainage is difficult and contamination easy.

Water supply and sewage disposal will not be discussed in any further detail except to mention what Dr. John Willis[1] of Northern Health Service has spoken of as the "dignity of hygiene". Very few Eskimos enjoy running water and flush toilets, but they are aware that we consider such luxuries to be standard conditions, if not necessities. If we want Eskimos to consider themselves as equal citizens, they must be able to strive for the same standards of comfort that the rest of the country enjoys. This is hard to achieve in a dwelling such as an Eskimo tent where even washing is difficult. Under these circumstances, lice, impetigo and other skin infections are common.

INFECTIOUS DISEASES

As one would expect, enteric infections are of some importance in these circumstances. Typhoid has been epidemic in some areas. Schaefer[2] claims that more than 10% of the Eskimos died from this disease in the Cumberland Sound in the early 1940's. Usually, enteric disease is endemic with seasonal fluctuations, such as the outbreak of infantile diarrhea reported recently from the Churchill area by Lizotte.[3] Outbreaks of this type, together with acute respiratory disease, help to explain the persistent high infant mortality rate.

Enteric virus diseases are probably also quite prevalent in the Arctic, a case in point being the disastrous epidemic of poliomyelitis in the Chesterfield Inlet region in 1949, reported by Adamson *et al.*[4] Dr. Wilt and the author carried out an antibody survey which indicated that this was not an exceptional occurrence.[5, 6] We also found antibodies to ECHO viruses, herpes simplex virus and adenovirus to be as frequent as in Manitoba. Another interesting finding which was published[7] but not explained was the prevalence of antibodies to psittacosis.

A problem of considerable interest is the devastating effect of often a relatively benign and self-limiting disease such as measles. This has commonly been attributed to a failure of primitive people to acquire racial immunological resistance comparable to that of Europeans who have been in contact with such diseases for centuries. This may be so, but as Sabean[8] has graphically described, starvation and exposure may be more important factors than racial susceptibility. When measles or influenza is introduced into a susceptible, isolated Eskimo community, the chances that everyone will become ill at the same time are very high. Primitive hygiene and crowded tents see to that. If reserves of food and fuel are small, and there is no one to hunt or to go for help (the usual means of communication is by dog team), exposure and starvation may take a high toll if help is not forthcoming quickly. The depleted community may recover without the disease assuming endemic proportions, so that the whole process may be repeated years later when the agent is again accidentally introduced. Some diseases which we ordinarily consider to be endemic may behave in this way. Certainly tuberculosis does not. It is endemic, and until recently it has taken a high toll, although the persistent efforts of the Northern Health Service are making considerable headway in overcoming this disease. On the other hand, syphilis seems to be practically non-existent, although the reasons for this are not at all clear.

As part of the tuberculosis picture, phlyctenular keratoconjunctivitis is one of the conditions contributing to corneal scarring and blindness. Reed

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and Hildes[9] have indicated that this disease is probably the major factor in corneal scarring. Another eye disease of considerable prevalence, but of doubtful significance in the etiology of corneal opacities and blindness, is ultraviolet conjunctivitis. The Eskimos had recognized this condition long before contact with whites and used to wear quite effective slit goggles made of bone or wood which have now been replaced by dark glasses. In spite of this, it is quite common to see Eskimos, particularly children, with snow blindness in the spring of the year when the glare from snow and ice is very great. There is a danger of secondary infection complicating this condition and contributing to permanent damage.

ECONOMIC FACTORS

The major native population is the Eskimo, of whom there are about 12,000 in Canada. They have a common language from Alaska to Greenland and a common native culture. There are, however, some differences, either native or imposed, between Eskimos in different parts of the Arctic. Most Eskimos, particularly those in the Eastern Arctic, have a sea-coast culture. They live on the coast and depend largely on sea mammals for their food, fuel and clothing. Some of these mammals, such as polar bears and walrus, harbour trichinosis. Clinical cases of this condition have been reported,[10] and skin tests show a high incidence of reactors.[11] Probably there are missed cases as the clinical features are rather non-specific. The Caribou Eskimos, living west of Hudson's Bay, obtained their chief native source of livelihood from the migrating caribou herds which they shared with the Arctic Indians, whose domain lies south of the tree line. Depletion of the caribou herds has been a serious event to these people. In these regions hydatid disease is endemic in a sylvatic cycle through the caribou and the wolves, from which the dogs form the bridge to man. Hydatid cysts may show up in routine x-ray surveys,[12] and specific skin tests show a high incidence of positive reactors.[11] The dog population of the Arctic exceeds the human in numbers and constitutes a health hazard in this way. The dogs are ferocious when hungry, and small children are occasionally eaten by them. Other accidental deaths are not uncommon, particularly in adult males who often travel and hunt alone.

The other people who occupy the Arctic are the white Europeans from our own culture. Almost all of these—traders, missionaries, teachers, administrators, doctors and weather-station and DEW-line operators—live by importing all facets of their own culture. They live in well-built houses, extravagantly large by native standards, which are kept warm by imported sources of energy. They bring their own clothes, their own food, their own transportation and their own amusements. However, people living in this way may still feel isolated and shut off from their own world. The psychological effects of such isolation have been a subject of much speculation. (Drs. Sisler and Wright at the University of Manitoba are trying to obtain factual data on this problem.[13])

The Arctic natives have been influenced, some to a large extent, by the value which Europeans have placed on items of trade, particularly furs. In areas where seal skins are the chief pelts exported, such as the Cumberland Sound area of Baffin Island, this trade dovetails with the Eskimo's native culture. Hunting is still mainly for food, and excess pelts are exported. In areas rich in Arctic fox, the pursuit of that animal, which normally was of little or no use to the native economy, has become a major economic activity; food, clothing and fuel, previously hunted, are now purchased with the proceeds of fox trapping. Once dependent on this new economy, the whole cultural structure rests on the precarious basis of the fur markets of Europe. As this depends on the fashions of Paris, the fluctuations in demand are not only unpredictable but incomprehensible. The combination of a bad harvest and poor prices leaves the trapper short of funds for the necessities of life.

DIET AND NUTRITION

This brings us to a consideration of diet and nutrition which has intrigued many people. The simple view that Eskimos live mainly on blubber probably never has been true. It is certainly not true today. Even in areas where the major source of food is still the seal hunt, protein, not fat, probably has always formed the major constituent of the diet.

Imported foods now form a variable portion of almost all Eskimo diets. In the Cumberland Sound area, with a population of 720, the annual import includes 35 tons of flour and 20 tons of sugar, as well as substantial quantities of rolled oats, hard tack, jam, syrup and canned meat. Although for cereals this works out to about 100 lb. per person, which is about two-thirds of the average Canadian consumption,[14] the major food source is still locally hunted seal meat. The cash income from the sale of furs and from welfare sources such as family allowance, old age and blind pensions and relief, is relatively small per family. In this area in 1959, the welfare funds amounted to approximately $46,000, and the income from furs is estimated at less than this. As there are 150 family groups, the income from both sources is not more than $600 a year per family with which to buy tobacco, ammunition, clothing and luxuries, as well as imported foods.

The problem of specific vitamin and mineral deficiencies, such as scurvy, rickets and infantile anemia, seems to be raised only in those areas where the native culture has been grossly disturbed and imported foods are used in place of fresh meat.[2]

The puzzle of the absence of arteriosclerosis in the face of a diet high in animal fats may be one of false premises. It has already been mentioned that in many Eskimos the diet may not, indeed, be high

in fat content. Also, the absence of arteriosclerosis is by no means proved. Because of this lack of factual data, a study of autopsy material has been undertaken by the Department of Pathology at the University of Manitoba.[15] It is too early to draw general conclusions, but we can say that atheroma does occur in Eskimos. However, the question of its severity in relation to age is still open. We have an impression, and only an impression, that the Eskimos do indeed have less atheroma, but this will have to be carefully tested by comparing them with whites matched for age and sex. We know from clinical examinations that Eskimos are not particularly obese and that there are some old Eskimos. In the Cumberland Sound 1.6% of the population are over 70 years of age compared to a figure of 4.8% for Canada as a whole.[14]

CANCER

Malignancies have also been said not to occur in pure-blooded Eskimos. This contention is difficult to prove, and the evidence that exists certainly does not support it. Fibiger[16] reported 14 cases of malignant growths and many more benign tumours from Greenland between the years 1911 and 1920. There have been case reports from Canadian sources which were summarized recently by Schaefer.[2] Autopsies on Alaskan Eskimos and Indians show a variety of tumours in the older age group,[17] a finding being confirmed by our own autopsy material.[15] Again, we do not have a large enough experience to be categorical, except to say that malignant tumours certainly occur in Canadian Eskimos, and there is some evidence that some tumours, notably parotid malignancies, may be more frequent than in whites.

MEDICAL ARRANGEMENTS

Some of the more difficult problems are administrative, such as the inherent difficulty in providing adequate medical coverage, including public health and health education, in an area so vast, so sparsely populated and so difficult for travel.

Another pertinent facet of social medicine is the level of education and sophistication of the remote Eskimo communities, although those who have been "outside" seem to adjust rapidly to our sense of values. Without sufficiently wide experience to be able to appreciate and strive for improvements, the Eskimos are not always aware of what might be achieved. The broad aspects of health depend on a vigorous, thriving community, interested in procuring the benefits of civilization even though they wish to maintain their independent existence. To foster this undoubtedly requires outside help in the form of material assistance and, perhaps more important, advice and guidance, but the sustaining drive must come from within and be built on the desire for improvement.

CONCLUSIONS

Many of the problems of Arctic health lie in the field of social and preventive medicine. The specific diseases encountered in the Arctic are not peculiar to that region but rather their incidence, severity and means of prevention and treatment may be greatly modified, not so much by the climate itself as by the social circumstances in which they occur.

I am grateful to Dr. P. E. Moore, Director, Indian and Northern Health Services, for his valuable comments on the manuscript.

REFERENCES

1. WILLIS, J. S.: Personal communication.
2. SCHAEFER, O.: *Canad. M. A. J.*, **81**: 248, 386, 1959.
3. LIZOTTE, A.: *M. Serv. J. Canada*, **15**: 421, 1959.
4. ADAMSON, J. D. *et al.*: *Canad. M. A. J.*, **61**: 339, 1949.
5. HILDES, J. A., WILT, J. C. AND STACKIW, W.: *Canad. J. Pub. Health*, **50**: 148, 1959.
6. HILDES, J. A., WILT, J. C. AND STANFIELD, F. J.: *Ibid.*, **49**: 230, 1958.
7. WILT, J. C., HILDES, J. A. AND STANFIELD, F. J.: *Canad. M. A. J.*, **81**: 731, 1959.
8. SABEAN, H. B.: *Dalhousie M. J.*, **7**: 10, 1954.
9. REED, H. AND HILDES, J. A.: *Canad. M. A. J.*, **81**: 364, 1959.
10. COFFEY, J. E. AND WIGLESWORTH, F. W.: *Ibid.*, **75**: 295, 1956.
11. CAMERON, T. W. M.: Personal communication.
12. MELTZER, H. *et al.*: *Canad. M. A. J.*, **75**: 121, 1956.
13. SISLER, G. C. AND WRIGHT, M.: Personal communication.
14. Canada, Dominion Bureau of Statistics, Information Services Section: Canada Year Book, 1957-58, Queen's Printer, Ottawa, 1958.
15. LEDERMAN, J. M., WALLACE, A. C. AND HILDES, J. A.: Unpublished data.
16. FIBIGER, J.: *Ztschr. f. Krebsforsch.*, **20**: 148, 1923.
17. GOTTMANN, A. W.: *A.M.A. Arch. Path.*, **70**: 117, 1960.

FACTS OF LIVING: LENGTH OF GESTATION

Medicolegal goings-on have an endless fascination for the spectator; what will they think of next? And who, if anyone, can understand it? For example, the ordinary length of gestation, in the human being, is about 40 weeks. Though unusual, as long as 44 weeks may be encountered, reckoned from the last menstrual period, and often there is a question whether the patient's reckoning might have been better.

What is splendid about a medicolegal pronouncement is its ability to rise above tedious fact when an overriding purpose is at work. For example, the law generally aims to uphold the legitimacy of any child if the matter is at all plausible. Recently, in Chicago, a child was born 15 months after the parents had separated, but the court decided that in such event it is possible for gestation to last 15 months.

The question was pursued by a Cleveland psychiatrist, I. N. Perr, who obtained the opinions of 38 professors of obstetrics about the length of gestation met with in their experience, in others' experience, in the literature, etc., and of course many of them were personally aware of long terms.

One of the answers "guessed" that 455 days might be the longest possible, though no one had actually heard of more than 389. Supposing the determinations were based on the identical body of knowledge, concerning the identical species, the least we can be is fascinated.—Editorial, *Medical Tribune*, November 7, 1960.

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CASE REPORTS

ELECTROCONVULSIVE THERAPY AND THE AORTA

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THERE IS GENERAL agreement that among the complications which may follow electroconvulsive therapy (E.C.T.), the most alarming, if not the most common, are those affecting the cardiovascular system. This is partly explicable in the light of Urquhart's[1] finding (reported before E.C.T. was introduced) that experimental electric shock causes generalized muscular contraction and peripheral vasoconstriction, which in turn brings about a sharp rise in arterial blood pressure and an accumulation of blood on the venous side of the circulation. When a major convulsion occurs, these effects are aggravated and, at the end of the seizure, accumulated venous blood is released, although peripheral vasoconstriction may still persist. "The heart may, therefore, have to master a difficult situation consisting of a combination of increased inflow load with increased peripheral resistance, both of which occur within the minute or minutes after the electrically induced seizure."[2] On the other hand, when E.C.T. is truly indicated, the patient who happens to have co-existent heart disease or hypertension stands to benefit as much as or more than any other, both mentally and physically, so it is particularly desirable not to withhold treatment without good reason.

Possibly this is why Kalinowsky and Hoch[3] seem to play down the dangers of cardiovascular disease, but even they state categorically that "aneurysm of the aorta is still an absolute contraindication to E.C.T." Wolford,[4] aware of the risk, nevertheless gave E.C.T. to a man who had an aneurysm of the thoracic aorta. He was able to keep his patient reasonably well only by repeated treatment, so that over a period of five years he gave E.C.T. on 274 occasions without mishap. Following the 275th treatment the patient died, his aneurysm having apparently ruptured into a bronchus. An autopsy was refused. Wolford did not record whether or not a muscle relaxant was used.

While E.C.T. has been employed less in recent years, with the advance of cardiovascular surgery, the possibility now exists of having to consider the use of E.C.T. for a patient who has *had* an aortic aneurysm, but who has one no longer, and has instead a teflon tube. No such case appears to have been reported to date, and the following experience may, therefore, be of interest.

The patient was a woman 66 years of age at the time of her first admission to the University of Alberta Hospital in August 1957. She had first noticed a pulsating abdominal mass in 1951. In 1952 she was found to have cardiac enlargement and auricular fibrillation, and thereafter she took digitalis sporadically but suffered no discomfort until April 1957. At that time a change occurred and she complained increasingly of abdominal pain and insomnia. It was noticed that she was somewhat depressed, but the pain seemed to be so clearly related to her abdominal aortic aneurysm that operation was advised. She herself was indecisive about the operation. On August 16, 1957, an aneurysm 6 cm. in diameter situated about 5 cm. below the left renal vein was resected and a teflon tube graft inserted. The operation proceeded smoothly, her convalescence was unremarkable and she returned home in September, free from pain and in a better mental state. Rather abruptly, in December, she relapsed and began to complain of "excruciating" pain in the lower abdomen and back. She re-entered hospital and once more appeared to be rather depressed. This impression was confirmed in subsequent days when it came to light that her relatives felt that she had "lost interest and lost hope". A lumbar aortogram showed that her aorta was functioning very well, and when the typical constellation of symptoms of a depressive illness had been largely elicited, E.C.T. was prescribed. This was temporarily forestalled and the diagnosis strengthened when she made a determined attempt at suicide, using a knife and, among other things, stabbing herself in the liver. A laparotomy was necessary, which provided additional opportunity to confirm that her aortic graft was in satisfactory condition.

E.C.T. was begun on January 1, 1958, and was given on 18 occasions, although only 11 effective major convulsions occurred. She was given atropine (grain 1/150) before each treatment and each was modified by sodium thiopental (Pentothal) and succinylcholine (Anectine). On the first few occasions the dosage varied a little, but later, modification was accomplished uniformly with 150 mg. Pentothal (6 c.c. of 2½% solution) followed by 30 mg. Anectine, intravenously. Except that it was not always easy to produce a convulsion, there was at no time any unusual difficulty or incident in connection with her treatment. She progressed rather slowly but quite steadily and, having improved greatly, she was discharged on February 4, 1958. Two and a half years later she was still enjoying good health.

COMMENT

It is appreciated that since Wolford was able to treat his patient 274 times without mishap, it is no great feat to have given this patient E.C.T. on only 11 occasions, especially as it was known from the aortogram and from the unexpected laparotomy that her aorta had been soundly reconstituted. Furthermore, it is quite possible that if such a case were to occur again, one of the newer antidepressant drugs would be preferred to E.C.T. The purpose of this report is to point out that if, for whatever reason, it is necessary to give E.C.T., it may be given, without undue apprehension, to a patient who has undergone aortic surgery. No doubt prudence would always dictate the effective use of a muscle relaxant first.

SUMMARY

A case of depression, of suicidal degree, is reported in which a course of electroconvulsive therapy was completed successfully, although the patient had previously had an aneurysm of the abdominal aorta which had been resected and replaced by a teflon tube graft.

I wish to thank Drs. P. H. Sprague, J. C. Callaghan and K. A. Yonge for permission to publish this case.

REFERENCES

1. URQUHART, R. W. I.: *J. Indust. Hyg.*, **9**: 140, 1927.
2. ALEXANDER, L.: Treatment of mental disorder, W. B. Saunders Company, Philadelphia, 1953, p. 153.
3. KALINOWSKY, L. B. AND HOCH, P. H.: Shock treatments, psychosurgery and other somatic treatments in psychiatry, 2nd ed., Grune & Stratton, Inc., New York, 1952, p. 171.
4. WOLFORD, J. A.: *Am. J. Psychiat.*, **113**: 656, 1957.

MIXED MESODERMAL TUMOUR OF THE CORPUS UTERI*

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THE MOST bizarre neoplasms in the corpus uteri are the rare, highly malignant, mixed mesodermal tumours. It is not within the scope of this paper to review the abundant literature on the subject. This case is reported not only because of the interesting pathological features, but also to draw attention to the fact that the clinical characteristics are the same as those for other malignant tumours of the uterus.

The mixed mesodermal tumours of the corpus uteri are believed to be of Müllerian duct origin and have a capacity for differentiation into various mesenchymal components which may include a variety of connective tissue and epithelial elements. The connective tissue components may consist of such diverse heterotopic tissues as striated muscle, cartilage, myxomatous tissue, fat or bone. The epithelial elements, when present, have a more restricted capacity for differentiation and are limited in histological type to those usually seen in the endometrium, cervix, Fallopian tubes, and vagina.[1] Variations of this tumour may also occur in the cervix, vagina or bladder, giving rise to the broader classification of these neoplasms as mixed mesodermal tumours of the female urogenital tract as a whole.

The nomenclature is no less confusing than the histology. Sarcoma botryoides,[2] mixed mesenchymal sarcoma,[3] polypoid rhabdomyosarcoma,[4] carcinosarcoma,[5] and mesenchymoma[6] are but a few of the designations to be found in the literature. McFarland,[7] writing in 1935, was able to collect 119 different terms from the literature on uterine and vaginal neoplasms used in reference to this family of tumours.

The term "mixed mesodermal tumour" has been criticized,[8, 9] since it indicates neither the malignant nature nor the Müllerian duct origin, but it is the most commonly used designation. Sarcoma botryoides traditionally has referred to the grape-like form of mixed mesodermal tumour occurring in the cervix and vagina of young children, although its use has not always been confined to this group of tumours. The confusing term "carcinosarcoma" usually refers to the combination of carcinomatous and sarcomatous elements. Some authors[5, 6] attempt to differentiate between carcinosarcoma and mixed mesodermal tumour, but carcinosarcoma probably represents a variant of mixed mesodermal tumour. The possibility of the coincidental occurrence of both a sarcoma and an adenocarcinoma, or of sarcomatous change in the stroma of an adenocarcinoma, must be considered in interpretation. Recently several authors have suggested the terms "malignant mixed Müllerian tumour",[1] "Müllerian mixed sarcoma",[9] or "Mülleroblastoma"[10] as more in keeping with the current histogenetic concepts.

The classification proposed by Ober[8, 11] is interesting. He divides the uterine sarcomas into four major groups consisting of leiomyosarcoma, lymphoma, angiosarcoma and mesenchymal sarcoma. He has subdivided mesenchymal sarcoma into pure and mixed forms. A pure mesenchymal sarcoma may be composed of tissue wholly homologous to the uterus—e.g. endometrial stromal sarcoma (undifferentiated uterine sarcoma), or heterologous to the uterus—e.g. pure rhabdomyosarcoma, pure chondrosarcoma, or pure osteosarcoma. Similarly, a mixed mesenchymal sarcoma may have elements homologous to the uterus (such as carcinosarcoma), or heterologous (such as a stromal sarcoma and rhabdomyosarcoma), or perhaps two or more heterologous elements without the undifferentiated stromal sarcoma. Ober distinguishes between the pure homologous sarcomas and the other varieties of mesenchymal sarcoma (mixed mesodermal tumour) which tend to arise in an older age group and have a more malignant behaviour.

Histogenesis

Numerous theories have been presented to explain the diversity of cellular elements, but the histogenesis remains obscure. A good discussion of these will be found in several reviews.[2, 8, 11-13] The various hypotheses derive from either the concept of metaplasia or modifications of the Cohnheim cell rest theory.

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Wilms[14] postulated that mixed tumours of the vagina and cervix originated from displaced primitive mesodermal cells of the lumbar area which were carried down by the caudal portion of the Wolffian duct during its descent in the fetus. This does not account for tumours of the corpus uteri which originate above the level of the entrance of the Wolffian ducts. Robert Meyer,[15] emphasizing the close proximity of the Müllerian and Wolffian duct systems in the early embryo, suggested "illegal cell connections" between the two systems to account for a displacement of embryonal cells from the nephroblastoma to the Müllerian mesenchyme. Lahm[16] suggested that the displacement of lumbar mesodermal cells might occur along the Müllerian duct. Willis[17] commented that: "The supposition that undifferentiated 'rests' of developmentally heterotopic tissues may remain in the endometrium for the whole of a woman's reproductive life, surviving multiple pregnancies and eventually producing a mixed embryonic tumour at the age of 50 or 60 or 70, is absurd."

Pfannenstiel[18] thought that the heterotopic tissue originated from normal connective tissue of the uterine mucosa by metaplasia initiated by some unknown stimulus. While conceding the possibility that smooth muscle, bone and cartilage may derive from mature connective tissue by metaplasia, various authors[13, 19, 20] object that this would not explain the presence of skeletal muscle.

Cell rest theories are no longer favoured, and the current opinion is that the adult variety of mixed mesodermal tumour is derived from tissue which develops from the mesenchyme of the Müllerian apparatus. It is suggested that endometrial stroma, although fully differentiated, still retains the embryological potentialities of Müllerian tissue. When it becomes malignant, it can manifest itself as the various mesenchymal derivatives seen in these tumours. The epithelial elements, when present, are derived from the epithelium of the Müllerian duct.[8]

A 61-year-old white woman whose menopause began in 1951 was admitted to the Kingston General Hospital in November 1959. She had had six normal pregnancies. She presented with a three-year history of slight, irregular vaginal bleeding, gradual weakness and abdominal swelling for one year, daily spotting for six months and intermittent epigastric pain and vomiting for three weeks. On admission she was acutely ill with gross abdominal distension and partial small bowel obstruction. The cervix appeared unremarkable, and a provisional diagnosis of adenocarcinoma of the endometrium with carcinomatosis was made. Two days after admission a surgical consultation was requested because of continued intestinal obstruction, and an incarcerated umbilical hernia was repaired the next day. The operation revealed massive ascites and tumour infiltration of the omentum. A peritoneal biopsy was interpreted as "malignant mesothelioma of the peritoneum". A curettage showed benign endometrial polypi and neoplastic tissue similar to that seen in the peritoneal biopsy. It was thought that the neoplastic tissue in the curettings represented a mixing of tissue owing to a technical error. Postoperatively the patient developed a wound infection, increasing abdominal distension, vomiting and dyspnea, and died ten days after operation.

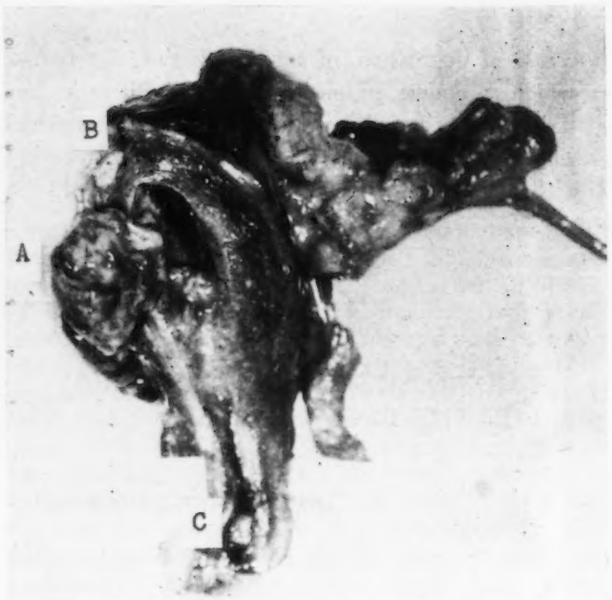

Fig. 1.—Right half of uterus showing fundal polypoid tumour (A) which has been displaced to one side. Serosal implantation of tumour is present on the fundus and adnexa. An intramural leiomyoma (B) and a benign endocervical polyp (C) are also seen.

Postmortem Findings

A complete autopsy was performed, but only the pertinent findings are recorded here. There were 300 c.c. of blood-tinged ascites and a massive infiltration of the peritoneum and omentum with solid, homogeneous, grey-white tumour, having a consistency not unlike that of formalin-fixed brain tissue. Dissected free, it weighed approximately 2000 g. Many of the small bowel loops were plastered together by tumour, which resulted in partial small bowel obstruction of the distal ileum. The loops were separated with relative ease.

The symmetrical uterus measured 9.5 x 5.0 x 3.0 cm. and weighed 125 g. Filling a major part of the dilated

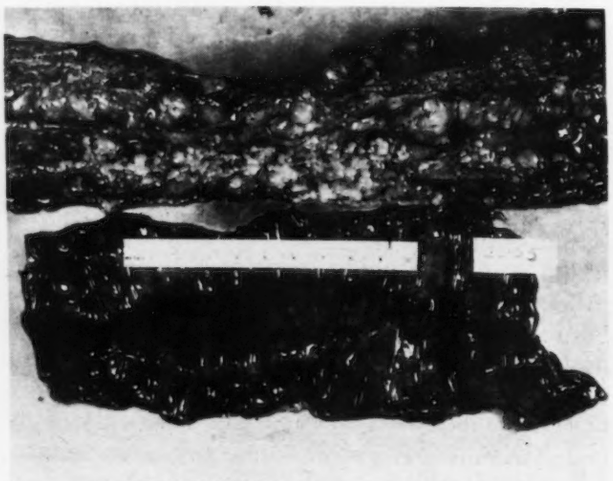

Fig. 2.—Small bowel with nodular tumour implants on the serosa. The mucosa is intact.

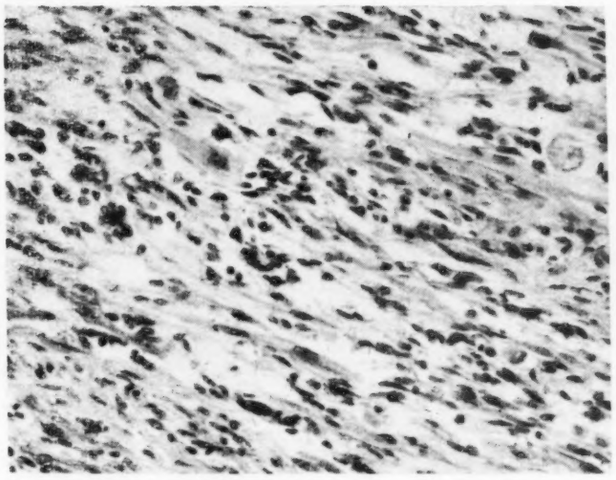

Fig. 3.—Nodule on serosa of small bowel shows, microscopically, a pleomorphic rhabdomyosarcoma. Hemalum-phloxin-saffron.

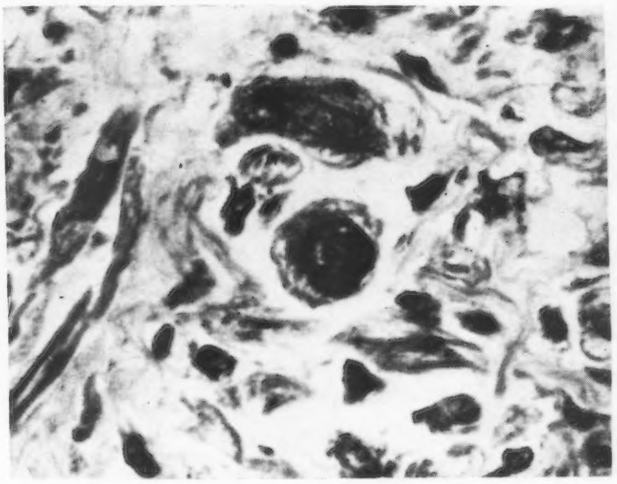

Fig. 5.—Middle — large round rhabdomyoblast with eosinophilic granular cytoplasm, large nucleus, and prominent nucleolus. A "strap" cell with cross striations is present in upper part of photograph. Masson's trichrome.

endometrial cavity was a triangular-shaped polypoid tumour. It measured 4.0 x 3.0 x 2.0 cm. and was attached by a thin pedicle to the right posterolateral wall 1.0 cm. below the cornu (Fig. 1). The external surface of the tumour was smooth, glistening, and pink-grey in colour, and the cut surface was solid, of brain-like consistency, and showed a grey-white stroma with pink, linear streaking. There was no invasion of the myometrium at the base of the pedicle. Other findings in the uterus included a solitary intramural leiomyoma (0.7 cm. in diameter), a small benign endocervical polyp, and histological evidence of slight adenomyosis.

The serosa of the uterine fundus, broad ligaments and adnexa was coated with tumour. Innumerable spherical or dome-shaped smooth white nodules, varying from 0.2 to 2.0 cm. in diameter, were implanted on the serosa of the small and large bowels (Fig. 2), and inferior surface of the diaphragm. The intestinal mucosa was intact and there was no invasion through the intestinal wall. A few small nodules were present on the gallbladder serosa. The liver was free of tumour except for one small superficial nodule on the right inferior surface. It measured 4 mm. in diameter. A similar white nodule on the pleura of the right middle lobe, which measured 5 mm. in diameter, represented the only evidence of metastasis outside the abdominal cavity. The serosa of the spleen and stomach was not involved.

Microscopic findings.—Sections of the polypoid uterine tumour showed two distinct elements. The chief element was a rhabdomyosarcoma pattern in which cells were arranged in irregular fascicles and coursed haphazardly throughout the tissue (Fig. 3). The cells varied from primitive round or oval (Fig. 4) to well-differentiated ribbon-like or strap-like forms. Intermediate types ranged from a "tennis racquet" cell having a tapering body with a single nucleus in the expanded end, to spindle forms with double nuclei arranged in tandem. A prominent cell was the so-called "rhabdomyoblast",[1] i.e. a round or oval giant cell showing an eosinophilic granular cytoplasm and a large, often vesicular nucleus, with a dense nuclear membrane and acidophilic nucleolus (Fig. 5). Mitoses were present but were not abundant. Well-defined cross-striations were rare and could be seen in two cell types. They were present in a few of the "mature" strap-like forms (Fig. 6). The cross-striations were demonstrated best on Zenker formalin-fixed tissue by Masson's trichrome stain or the phosphotungstic acid-hematoxylin stain, but they could also be seen with a hemalum-

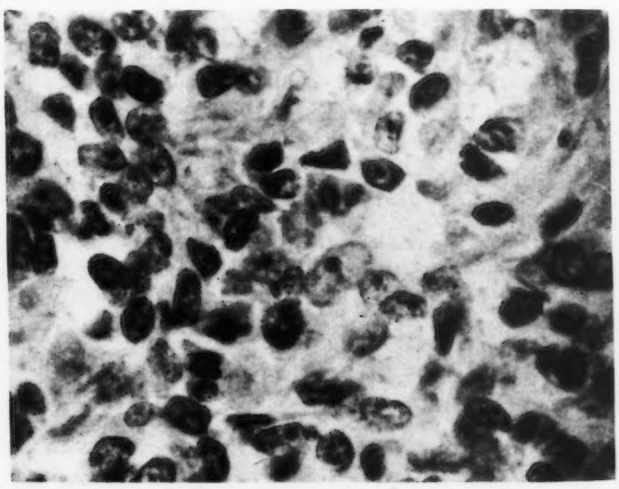

Fig. 4.—Polypoid fundal tumour — "primitive" round and ovoid cells in rhabdomyosarcomatous stroma. Hemalum-phloxin-saffron.

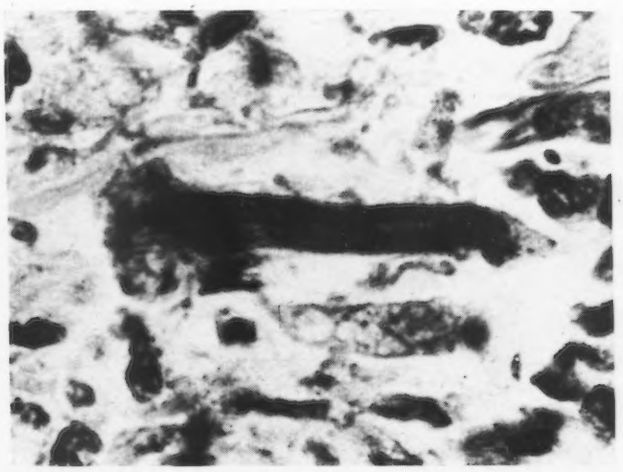

Fig. 6.—Well-differentiated "strap" cell with well-defined cross-striations and longitudinal myoblasts. Phosphotungstic acid-hematoxylin.

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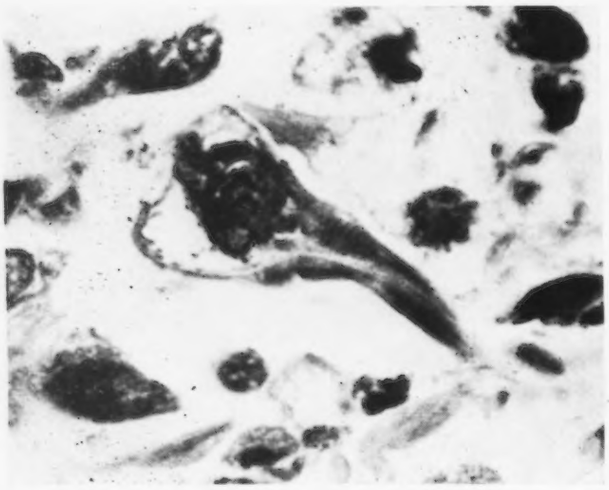

Fig. 7.—Early "tennis racquet" cell with cross-striations. The large nucleus in the widened end suggests a possible evolution of the cell from a "rhabdomyoblast". Masson's trichrome.

phloxin-saffron stain. They were extremely difficult to identify in tissues fixed by 10% formalin. Cross-striations were also present in a very few large ovoid cells which suggested "rhabdomyoblasts" differentiating into early "tennis racquet" cells (Figs. 7 and 8). This is a feature seldom observed or stressed before. "Rhabdomyoblasts" have been described as lacking cross-striations,[1] but reference to cross-striations in tumour giant cells has been noted in several publications.[6, 20, 21]

Incorporated in the sarcomatous stroma were occasional glandular structures closely resembling normal endometrial glands. There was moderate variation in the size and shape of the columnar cells and a few were globular or peg-shaped. On the whole, the glands had a benign appearance. An occasional gland showed prominent cilia (Fig. 9). A similar type of simple columnar epithelium was present on the surface of the tumour in many foci. The glands were more numerous towards the base of the polyp. At the base of the pedicle, the tumour infiltrated to the deeper layers of the endometrium, but there was a sharp demarcation between the tumour and endometrium and no invasion of the myometrium.

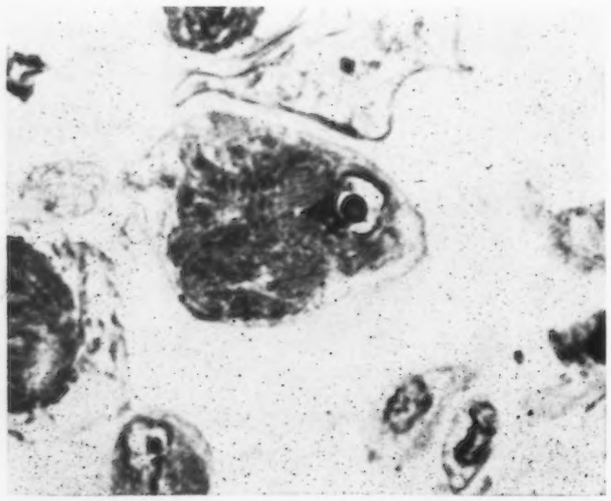

Fig. 8.—Ovoid giant cell with eosinophilic granular cytoplasm and faint cross-striations. Masson's trichrome.

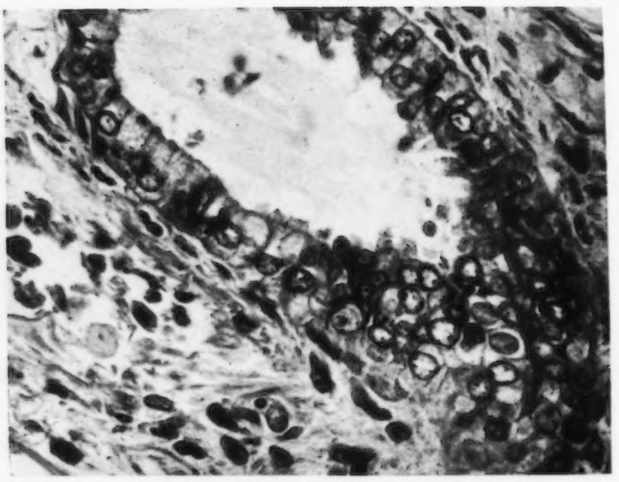

Fig. 9. — Fundal tumour. Endometrial-like gland with ciliated columnar epithelium surrounded by rhabdomyosarcoma. Phosphotungstic acid-hematoxylin.

Numerous sections of the abdominal metastases, and sections of the nodule of the liver and lung showed a pure rhabdomyosarcoma. No epithelial elements were identified. Fatty tissue was present in a few sections from the mesentery, but this had the appearance of adipose tissue invaded by the tumour. The rare "strap" cell in the metastases showed cross-striations.

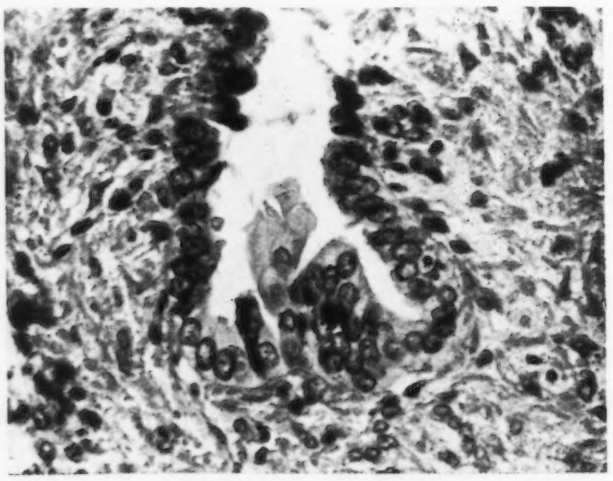

Fig. 10.—Omentum — surgical biopsy atypical but non-neoplastic endometrial-like gland surrounded by rhabdomyosarcoma. Hemalum-phloxin-saffron.

The surgical biopsy sections were re-evaluated. The curettage sections showed benign endometrial polypi and separate fragments of rhabdomyosarcoma. In addition, one section from the peritoneal biopsy showed two small glands similar to the endometrial-like glands in the primary tumour (Fig. 10). There is no doubt of the origin of this section, since a small amount of omental fat is present at the periphery. On this basis we have elected to call this lesion a mixed mesodermal tumour of the corpus uteri which had differentiated primarily as a rhabdomyosarcoma but which also contained histologically benign epithelial elements of Müllerian duct origin. A similar combination has been described by Liebow and Tennant[20] and Herb.[22]

CLINICOPATHOLOGICAL FEATURES

The fundal mixed mesodermal tumours tend to be polypoid or pedunculated in contrast to the

grape-like sarcoma botryoides of the cervix or vagina. Most of these tumours arise from the posterior wall of the fundus, and as a rule there is only superficial invasion of the myometrium. An origin from a layer between the myometrium and endometrium is often described. This has been correlated with the finding that in the human embryo, at least, the endometrium is separated from the myometrium by a thin mesenchymal sheath of the Müllerian ducts.[12]

The mixed mesodermal tumour of the corpus uteri shows a marked tendency to spread quickly to the pelvis and abdominal cavity.[1] Distant metastases to lymph nodes,[1] intestines,[1] liver,[1] lungs,[2] and vertebrae[1] are reported, but there are insufficient autopsy reports as yet to evaluate properly the behaviour of the tumour.

Rhabdomyosarcomatous and chondrosarcomatous components are the most common heterologous elements in these tumours. The metastases may be different histologically, and are sometimes less well differentiated than the primary tumour. There is as yet no generally accepted definition of, or criteria for, the diagnosis of mixed mesodermal tumour of the corpus uteri. Certain authors[13] consider the presence of striated muscle to be a prerequisite for diagnosis. Others[1, 19] demand at least two or more heterologous elements. It is generally agreed that multiple sections, special stains, proper fixation and a thorough examination are required for the proper evaluation of these tumours.

Marcella,[23] in a recent review of the medical literature, collected only 234 cases of mixed mesodermal tumour of the female genital tract, 11 of which he added himself from a 16-year period, representing 0.07% of the gynecological admissions. This agrees with Steinberg,[1] who over a six-year period collected 21 cases among 26,144 gynecological admissions (0.08%). There is too much variation of opinion concerning what constitutes a "mixed mesodermal tumour" to allow a determination of the exact incidence. In 1952, Kulka and Douglas[12] applied rigid criteria and accepted only 20 cases as pure rhabdomyosarcoma of the corpus uteri.

Mixed mesodermal tumours of the corpus uteri occur predominantly in postmenopausal women, whereas the cervical form is most common during active menstrual life. The vaginal tumour characteristically occurs in infants. Various series report the average age of patients with mixed tumours of the corpus uteri to be in the late fifties. The age of the patient in this report (61 years) is in accord with these reports.

Postmenopausal bleeding is the most common clinical manifestation. Early metastasis is the rule: weakness, anorexia, an enlarging uterus, abdominal swelling, or pain may be early symptoms and signs. Patients who are diagnosed later in the course of the disease in the corpus uteri occasionally show a necrotic polypoid mass protruding through the cervical os and this may be passed per vaginam. The diagnosis depends upon biopsy.

The average survival time after diagnosis is less than two years. Therapy, including operation, radium, deep x-ray irradiation, nitrogen mustard, and thiotepa,[1] has had no appreciable effect in altering this unfavourable prognosis. Immediate radical operation probably offers the best hope in early cases.[1] Reports of five-year survival are uncommon.[23]

SUMMARY

A case of mixed mesodermal tumour of the corpus uteri that was composed of rhabdomyosarcoma and histologically benign epithelial elements, and that produced extensive metastases to the abdominal cavity, is reported. It is of especial interest because of the demonstration of cross-striations in occasional "rhabdomyoblasts" as well as in the more differentiated strap-like forms. A discussion includes consideration of the problem of nomenclature, an outline of the main clinicopathological features of the mixed mesodermal tumour of the corpus uteri, and a brief review of the histogenetic concepts with emphasis on the theory of origin from mesenchymal derivatives of the Müllerian apparatus.

REFERENCES

1. STEINBERG, W. H., CLARK, W. H. AND SMITH, R. C.: *Cancer*, 7: 704, 1954.
2. OBER, W. B. AND EDGCOMB, J. H.: *Cancer*, 7: 75, 1954.
3. ALZNAUER, R. L.: *A.M.A. Arch. Path.*, 60: 329, 1955.
4. MOSTOFI, F. K. AND MORSE, W. H.: *J. Urol.*, 67: 681, 1952.
5. SYMMONDS, R. E. AND DOCKERTY, M. B.: *Surg. Gynec. & Obst.*, 100: 232, 1955.
6. HILL, R. P. AND MILLER, F. N., JR.: *Cancer*, 4: 803, 1951.
7. MCFARLAND, J.: *Surg. Gynec. & Obst.*, 61: 42, 1935.
8. OBER, W. B. AND TOVELL, H. M.: *Am. J. Obst. & Gynec.*, 77: 246, 1959.
9. MARCUS, S. L.: *Obst. & Gynec.*, 15: 47, 1960.
10. MARTIN, J. F., CABANNE, F. AND FOURNIE, G.: *Ann. anat. path. Paris*, 1: 428, 1956.
11. OBER, W. B.: *Ann. A. New York Acad. Sc.*, 75: 568, 1959.
12. KULKA, E. W. AND DOUGLAS, G. W.: *Cancer*, 5: 727, 1952.
13. LEBOWICH, R. J. AND EHRLICH, H. E.: *Surgery*, 10: 411, 1941.
14. WILMS, M.: Cited by Kulka and Douglas.[12]
15. MEYER, R.: Cited by Ober and Edgcomb.[2]
16. LAHM, W.: Cited by Kulka and Douglas.[12]
17. WILLIS, R. A.: Pathology of tumors, Butterworth & Co., Ltd., London, 1948, p. 754.
18. PFANNENSTIEL, J.: Cited by Lebowich and Ehrlich.[13]
19. HARDY, J. A., JR. AND MORAGUES, V.: *Am. J. Obst. & Gynec.*, 63: 307, 1952.
20. LIEBOW, A. A. AND TENNANT, R.: *Am. J. Path.*, 17: 1, 1941.
21. STOUT, A. P.: *Ann. Surg.*, 123: 447, 1946.
22. HERB, I. C.: *Surg. Gynec. & Obst.*, 10: 463, 1910.
23. MARCELLA, L. C. AND CROMER, J. K.: *Am. J. Obst. & Gynec.*, 77: 275, 1959.

THE WRITING is on the wall. The day of that old-fashioned, deterioration-breeding, medical concentration camp called an asylum is just about over. The day of short-term treatment in small units with restitution to the community is here. Many of us have physical illnesses, diabetes, heart disease, peptic ulcers, and carry on in the community. The same can be said of many of our mental illnesses. The new concept, the revolutionary concept is that these people are not evil, they are not dangerous, they are not possessed of devils, they are decent citizens like you and me and can be treated in the community with safety and dignity. It is the job of the Canadian Mental Health Association to see to it that these revolutionary concepts are known, accepted, and implemented the length and breadth of this fair land.—F. E. Coburn: *Canada's Mental Health*, October 1960.

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SHORT COMMUNICATIONS

ONYCHOMYCOSIS CAUSED BY SCOPULARIOPSIS BREVICAULIS*

J. B. FISCHER, M.S.A., *Toronto*

THE FOLLOWING is a brief report of three cases of nail infection by the fungus *Scopulariopsis brevicaulis*. This fungus is commonly found in soil and on surfaces exposed to the air. It attacks a great variety of organic materials, growing especially well on substances rich in proteins. Most reports of its infecting nail tissue have been published in Europe. It has been infrequently reported on this continent as a pathogen,[1] and few practising physicians are aware of its potential to attack keratinized tissue.

During the past 13 years, from 1947 to 1959 inclusive, we have examined 3693 specimens of scrapings from finger and toe nails. Of these 879, or approximately 24%, were infected with a fungus. No infections by *Scopulariopsis brevicaulis* were diagnosed until 1959, when three such infections were established.

The purpose of this report is to bring this infection to the attention of physicians and to describe briefly the fungus and the characteristics of the infection.

The primary growth of *Scopulariopsis brevicaulis* (*Sacc*) *Bainier* on Sabouraud's agar is velvety and ranges from white to shades of yellow brown to dark brown. Later the velvety character is lost and the colony becomes powdery. Some strains produce an overgrowth of ropes of hyphae. The structures that produce the conidiospores are similar in general appearance to comparable structures produced by the genus Penicillium. The conidiospores are very characteristic and are usually recognized easily. They are lemon-shaped with a broad truncate base. They are about seven microns in length. The surface of young spores is often smooth, but as the spores mature they usually become tuberculate. The mycelium is septate (Fig. 1).

Onychomycosis caused by *Scopulariopsis brevicaulis* is described in the "Manual of Clinical Mycology" by Conant *et al.*[2] as follows: "Infection usually begins at the lateral edge of the nail, burrows beneath the plate and produces large quantities of cheesy debris."

CASE 1.—A 33-year-old man reported to his doctor in January 1959. He stated that about 1955 the colour of the nail of the left great toe began to change. This continued and the nail became dull and thickened. The infection began at the lateral borders and progressed to involve one-third to one-half of the nail plate. Scrapings collected at this time as well as some collected in February 1959 were positive for Scopulariopsis in direct examination as well as in culture. On examination at the January visit the nail was described as coarse, brittle, crusty; hard material under the edge of the nail and the surface was very rough. By April 1960 the other nails on the same foot were becoming involved. Infection was beginning to show also on the nail of the great toe of the right foot.

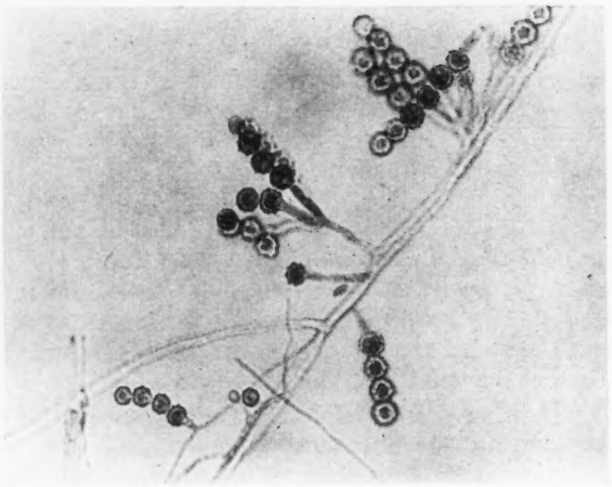

Fig. 1.—Microscopic appearance of *Scopulariopsis brevicaulis* in culture showing the tuberculate, lemon-shaped conidiospores.

CASE 2.—On March 26, 1959, scrapings from the nail of the left great toe of a 36-year-old man were received at the Central Laboratory of the Ontario Department of Health with the following clinical information: Rough, discoloured, pitted nail on left great toe. Nail thickened, hard on top and soft below. Outer two-thirds of nail affected and inner one-third normal (Fig. 2). Present for 1½ years, slowly getting worse. No other nails affected.

Fig. 2.—Rough, discoloured, pitted nail of left great toe (Case 2).

*From the Mycology Section, Central Laboratory, Ontario Department of Health, 360 Christie Street, Toronto 4, Ontario.

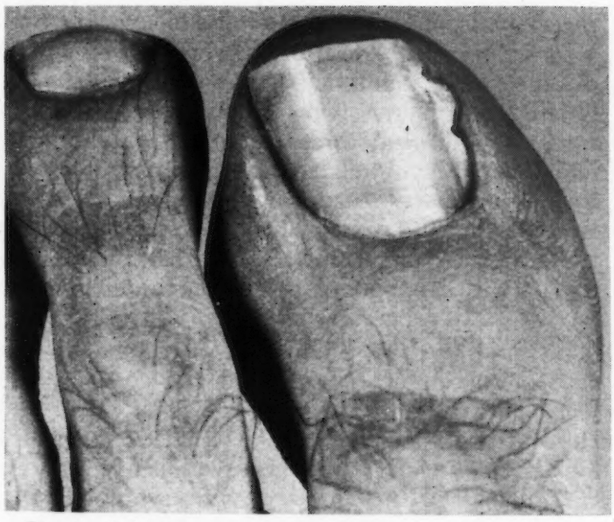

Fig. 3.—Infection progressing from lateral border of nail (Case 3).

CASE 3.—In November 1959, a 33-year-old healthy man reported to his doctor that during the previous six weeks he noticed the lateral edge of his left great toe nail becoming thick and opaque. There was no pain or tenderness. Scraping with a scalpel revealed this area to be dry and crumbling (Fig. 3). General examination revealed no other abnormalities, and the skin and appendages were otherwise normal.

MYCOLOGY

Direct examination: Nail scrapings and subungual debris from each patient were mounted in 25% sodium hydroxide (NaOH) for microscopic examination. In each case great masses of conidiospores characteristic of Scopulariopsis were found, as well as numerous mycelial filaments (Fig. 4).

Culture: In the routine culture of body materials for dermatophytes, the medium used routinely is Sabouraud's agar to which is added cycloheximide in sufficient concentration to control contaminating fungi, and penicillin and streptomycin to control bacterial growth. All specimens were cultured on Sabouraud's agar with and without cycloheximide, penicillin and streptomycin. Growth in the presence of cycloheximide was either very poor or absent. It has been our experience at the Central Laboratory in Toronto that this infection is suggested by finding great masses of the conidiospores and mycelium by microscopic examination and poor or absent growth on a medium containing cycloheximide. This antibiotic inhibits or greatly reduces the growth of Scopulariopsis. Any common dermatophyte if present would have a chance to grow.

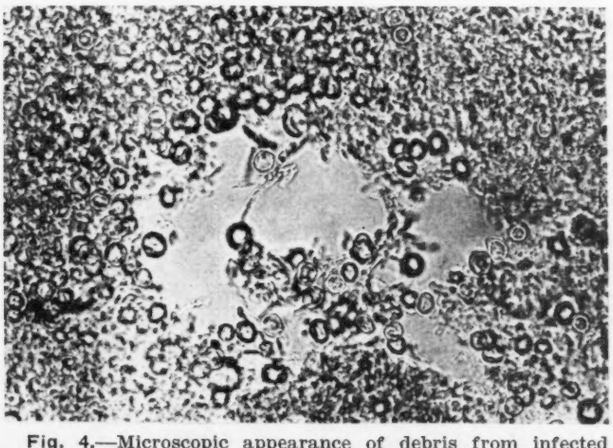

Fig. 4.—Microscopic appearance of debris from infected nail in NaOH mount. Note the lemon-shaped conidiospores and the mycelium, × 400.

TREATMENT

No information is available concerning the treatment used in Case 1, and in Case 2 the patient did not report for treatment. The patient of Case 3 was treated immediately by griseofulvin. On November 28, 1959, 250 mg. of griseofulvin four times a day was prescribed. After one month slight improvement was suspected, but later it became apparent that in spite of treatment the infection was spreading proximally along the lateral edge into the base of the nail. In March 1960, repeat cultures showed the same organism. Sensitivity tests, using the agar diffusion method, showed this isolation of *Scopulariopsis brevicaulis* to be resistant to griseofulvin, and the drug was discontinued on April 1. The agar diffusion sensitivity test followed in this work consisted of the use of quarter-inch discs impregnated with griseofulvin dissolved in acetone, 10 μg. per disc. The acetone was removed by evaporation. This test inhibits all the common dermatophytes tested, preventing growth over an area of 3 to 4 cm. in diameter on Sabouraud's agar.

DISCUSSION

Since the cycloheximide either reduced or prevented the growth of *Scopulariopsis brevicaulis* in culture and no other fungus was grown, it would seem that this fungus was the only one present. In Case 3 the patient had been treated by griseofulvin for four months. Had any of the common dermatophytes been present some improvement would have been expected. The fact that the isolation in Case 3 was not sensitive to griseofulvin emphasizes the importance of having laboratory assistance in establishing a diagnosis.

SUMMARY

Three cases of onychomycosis caused by *Scopulariopsis brevicaulis* are reported. Infection of keratinized tissue by this fungus has seldom been reported on this continent and was recognized only three times in nearly 3700 specimens examined at the Central Laboratory of the Ontario Department of Health. In one case the organism was not sensitive to griseofulvin *in vivo* or *in vitro*. This report emphasizes the advantage of using a laboratory service in medical mycology.

Grateful acknowledgment is made to Dr. A. J. Smith, Richmond Hill, Dr. G. E. David, Toronto, and Dr. J. A. Little, Department of Medicine, St. Michael's Hospital and the University of Toronto. Without their assistance the clinical data in this paper could not have been presented. Appreciation is also expressed to Mr. A. Smialowski, St. Michael's Hospital, Toronto, for the photograph of Case 3 and to Mr. J. S. Beilby, Ontario Department of Health, for the other photographs.

REFERENCES

1. FRANKS, A. G., TASCHDJIAN, C. L. AND GUTIERREZ, C. T.: *A.M.A. Arch. Dermat.*, 74: 241, 1956.
2. CONANT, N. F. *et al.*: Manual of clinical mycology, 2nd ed., W. B. Saunders Company, Philadelphia, 1954.

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INFANTILE GASTROENTERITIS: A SEARCH FOR VIRAL PATHOGENS*

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REPORTS FROM several centres during the past five years have presented evidence of an association between certain members of the enterovirus and adenovirus groups and outbreaks of diarrhea in infants, for which no specific bacterial cause was found. At a New York nursery during 1956, Eichenwald *et al.*[1] isolated ECHO virus type 18 from 10 rectal swabs obtained from 12 infants who had diarrhea. However, no viruses were isolated from rectal swabs from 9 unaffected children. Rising antibody titres in paired sera from all 12 sick infants confirmed an etiological relationship between ECHO virus type 18 and diarrhea, but none of 9 unaffected children developed antibody. In England, Gardner, McGregor and Dick[2] reported the isolation of adenovirus type 7 from the stools of 10 out of 31 infants with diarrhea, whereas only one strain of adenovirus, type 6, was isolated from the stools of 50 healthy children in a neighbouring town. He also noted the high incidence of *Shigella sonnei* isolated from the stools of children with diarrhea. Six of the 10 children from whom adenovirus type 7 was isolated were also excreting *Shigella sonnei*. In Cincinnati during 1955 and 1956, Ramos-Alvarez and Sabin[3, 4] noted that polioviruses and Coxsackie viruses were isolated as frequently from stools of normal children as from those with diarrhea, but that ECHO viruses were associated significantly with diarrhea. Of 56 children who had diarrhea during 1955, rectal swabs from 24 yielded viruses cytopathic for monkey kidney tissue cultures, including 13 strains of ECHO virus and one strain of adenovirus type 3. During 1956, 65 patients with diarrhea out of 96 tested yielded viruses. However, only 6% of 154 Cincinnati children without diarrhea who were studied during the summer of 1953 excreted an enterovirus. In 1956 the virus isolation rate was six times higher in diarrheal children than in those without diarrhea. Rising antibody titres against the patient's own virus strain in 14 infants of 19 who yielded an enterovirus confirmed that this virus infected the patient at the time of illness, and rising antibody titres to one of the prevalent virus types in a further three children out of 18 with diarrhea from whom no virus was isolated suggested infection with this virus strain. Similarly, in western Scotland, Sommerville[5] reported a higher rate of isolation of ECHO viruses from rectal swabs of children with diarrhea than from other children. In Montreal during a 10-month period, Joncas and Pavilanis[6] isolated enteroviruses from rectal swabs of five children and adenoviruses from a further eight children of 74 who presented with diarrhea and vomiting, but enteroviruses were isolated from merely two subjects and adenoviruses from an additional three out of 62 children who had symptoms unrelated to the gastrointestinal tract. Rising titres of adenovirus complement-fixing antibody in paired sera of a further five children who had gastroenteritis suggested concomitant infection with an adenovirus, despite the inability to recover virus from their rectal swabs.

In view of these findings an investigation was carried out among infants under 2 years of age who were admitted with gastroenteritis to the Hospital for Sick Children, Toronto. As controls for this investigation we studied stools from infants of similar age, hospitalized with symptoms unrelated to the gastrointestinal tract.

Five well-defined epidemics of gastroenteritis were studied. These occurred in January, May and August of 1959, and January and March, 1960. In most instances the diarrhea began suddenly with the expulsion of 10 to 15 watery yellowish-green stools per day, but passage of blood per rectum was uncommon. The diarrhea was frequently accompanied by vomiting of all foodstuffs and fluids offered to the infant. A state of dehydration and electrolyte imbalance ensued rapidly. This required prompt correction by intravenous infusion of appropriate fluids to correct electrolyte imbalance. Evidence of infection of the respiratory tract, throat, ears, genitourinary tract or central nervous system was not detected in these patients. Leukocyte counts in 50 patients of 85 examined during January 1959 were between 4000 and 9900, but three patients had counts between 19,000 and 22,000. Vomiting usually ceased one to two days after withdrawal of all oral feedings, and diarrhea generally abated shortly thereafter. Since enteropathogenic bacteria were isolated very infrequently during these periods from the stools of Toronto infants with frequent watery green stools, antibiotics were not administered routinely until a specific bacterial pathogen was isolated. Identification of pathogens usually takes 48 hours. When small amounts of fluid administered frequently by mouth were tolerated, the child was gradually returned to a full feeding. The usual hospital stay was five to seven days.

Stool samples were collected from a total of 208 infants, mainly under one year of age. All stools were tested for the presence of virus in monolayer cultures of trypsinized monkey kidney cells, by methods described previously;[7] 131 of these were also tested in monolayer cultures of human amnion cells, and 30 specimens were tested by intracerebral injection of newborn mice. Bacteriological examination of the same fecal specimens was undertaken routinely. Stools in the control series were collected over a one-year period from April 29, 1959, to April 29, 1960, from infants under 2 years of age who had been admitted to

*From the Department of Virology, Bacteriology and Pediatrics, The Research Institute, the Hospital for Sick Children, Toronto.

Assisted with funds allocated by the Province of Ontario under the National Health Grants Program, Department of National Health and Welfare, Ottawa.

TABLE I.—VIRUS ISOLATIONS FROM A CONTROL SERIES

Virus type		*No. of specimens yielding virus*
Coxsackie	A9	1
	B2	11
	B5	3*
ECHO	6	1
	14	5
Poliovirus	I	2*
Untyped		4
Total positive		27 (6.4%)
Total tested		420

*Virus was isolated on two occasions from feces of one patient.

a general pediatric ward of the Hospital for Sick Children. Their conditions included failure to thrive, feeding problems, metabolic disorders and pneumonia. A total of 420 stools were collected from 349 children. All stool extracts were tested for the presence of virus in monolayer cultures of trypsinized monkey kidney cells, and isolates were typed by neutralization against the following antisera: Coxsackie virus types A9, B1, B2, B3, B4 and B5, ECHO virus types 2, 6, 9, 13, 14 and 16, and poliovirus types I, II and III.[7]

RESULTS

None of the stools from patients with diarrhea yielded virus when tested in monkey kidney cells. Similarly, virus was not isolated from any of those stools which were tested in human amnion cell cultures or in newborn mice.

Enteropathogenic bacteria were isolated from stools of three children with gastroenteritis out of 88 tested during January 1959. The organisms were *Salmonella manhattan*, *S. montevideo* and *S. typhimurium*. In May 1959, no specific bacterial pathogen was isolated from stools of the 23 infants. In August 1959, stools of four patients out of 14 tested yielded enteropathogenic bacteria, including two strains of *S. typhimurium*, one strain of *Escherichia coli* type O-128 B-12 and one strain of *E. coli* type O-55 B-5. In January 1960, no pathogenic bacterium was isolated from the stools of 20 children. From stools of 16 patients tested during March 1960, two yielded pathogenic bacteria, including one strain each of *Salmonella bareilly* and *S. paratyphi B*.

Enteroviruses were isolated from 27 out of 420 stool specimens studied in the control series (Table I). Serum samples were not obtained from these children. It is uncertain whether the children from whom viruses were isolated had had a subclinical infection or whether they were transient carriers of these viruses. The peak incidence of isolation of viruses was during August, September and October (Table II). This seasonal upsurge in the rate of isolation of enteroviruses has been observed elsewhere in North America,[8] even in the absence of overt disease in the study group.

DISCUSSION

The complete failure to isolate viruses from the stools of 208 infants with acute gastroenteritis who were studied at the Hospital for Sick Children between January 1959 and April 1960 is in sharp contrast to the findings of investigators elsewhere who reported virus isolation rates ranging from 19% in Montreal[6] to 43% in Cincinnati.[3] The low incidence of isolation of enteropathogenic bacteria (4%) in Toronto infants at this time differs grossly from the high frequency of recovery of *Shigella sonnei* from children at Newcastle-on-Tyne in 1958,[2] or of enteropathogenic bacteria from children in Cincinnati in the years that these studies were made.[3] In contradistinction to Cincinnati where the epidemics of diarrhea were mainly during summer, the majority of Toronto infants now contract gastroenteritis during winter, at a time when enteroviruses are rarely isolated.

TABLE II.—MONTHLY INCIDENCE OF VIRUS ISOLATIONS FROM CONTROL STOOLS

	No. of isolations	*No. of stools tested*
1959		
April	0	9
May	1	36
June	0	42
July	2	34
August	11	33
September	3	21
October	6	40
November	1	39
December	1	27
1960		
January	0	23
February	2	39
March	0	48
April	0	29

Although no specific viral or bacterial agent has been incriminated so far in the etiology of infantile gastroenteritis in Toronto, this condition is highly contagious. It appears to be transmitted by fecal contamination of clothing and other fomites. After introduction of nursing in strict isolation for all patients with gastroenteritis at the Hospital for Sick Children, ward cross-infection has been virtually eliminated.

SUMMARY

During 1959 and 1960, five epidemics of gastroenteritis in infants were studied. No virus was isolated from the stools of 208 children with diarrhea. From April 1959 to April 1960, 27 strains of enterovirus were isolated from 420 stools of infants who had symptoms unrelated to the gastrointestinal tract.

REFERENCES

1. EICHENWALD, H. F. *et al.*: *J. A. M. A.*, **166**: 1563, 1958.
2. GARDNER, P. S., MCGREGOR, C. B. AND DICK, K.: *Brit. M. J.*, **1**: 91, 1960.
3. RAMOS-ALVAREZ, M.: *Ann. New York Acad. Sc.*, **67**: 326, 1957.
4. RAMOS-ALVAREZ, M. AND SABIN, A. B.: *J. A. M. A.*, **167**: 147, 1958.
5. SOMMERVILLE, R. G.: *Lancet*, **2**: 1347, 1958.
6. JONCAS, J. AND PAVILANIS, V.: *Canad. M. A. J.*, **82**: 1108, 1960.
7. MCLEAN, D. M., WALKER, S. J. AND BAIN, H. W.: *Ibid.*, **79**: 789, 1958.
8. MELNICK, J. L.: ECHO viruses. *In*: Cellular biology, nucleic acids and viruses. Special Publications of the New York Academy of Sciences, vol. 5, Academy, New York, 1957, p. 365.

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THE "FARQUHARSON COMMITTEE REPORT" AND THE FUTURE OF CANADIAN MEDICAL RESEARCH

FOR SEVERAL years the deans of Canada's medical schools, and other authorities involved in the administration and conduct of medical research in this country, have experienced increasing concern over the critical inadequacy of financial support and facilities available for this vitally important facet of medical science. In the autumn of 1957, the deans, through the agency of the Association of Canadian Medical Colleges, presented a brief to the Ministers of National Health and Welfare, Veterans Affairs, Trade and Commerce, and National Defence, recommending that the Federal Government appoint a committee to review the methods by which the Government of Canada supported research in medicine, to study the adequacy of this support and to recommend future policies for support and development of medical research in Canada. In February 1958 the government appointed such a committee, composed of medical scientists from across Canada, under the chairmanship of Professor R. F. Farquharson of Toronto. The findings of this "Special Committee Appointed to Review Extramural Support of Medical Research by the Government of Canada" were embodied in a documented report (now generally referred to as "The Farquharson Committee Report")* which was presented on November 12, 1959, to the Chairman of the Committee of the Privy Council on Scientific and Industrial Research, the Honourable the Minister of Trade and Commerce.

In the introduction to its report, the Farquharson Committee pointed out that in many fields of medicine the advances in knowledge that have accrued over the past half-century undoubtedly exceed the sum total of progress throughout the entire previous history of the profession and that medical research has played a major role in these achievements. The public's increasing awareness of the benefits to be reaped from intensified research is reflected in the increased funds for this purpose that are being made available in most nations of the western world. In many of these countries, particularly the United States, medical research expenditures have increased far more rapidly than has the gross national product. Despite differences in the organization of medical research in Canada, the United States, Great Britain and Sweden, some useful comparisons of trends in their government research support are possible. Analysis of this information indicates that Canada now lags far behind the United States in its support of medical research, and despite recent budgetary increases for this purpose, is still below the level of such support provided in Great Britain and Sweden.

The Committee reviewed some of the outstanding advances in medical knowledge that have been contributed by Canadian research scientists in recent decades, pointing out that none of these was the product of a single investigator but represented the composite efforts of clinicians at the bedside or in the operating room, as well as a host of laboratory workers in the basic sciences. To a large extent the investigators who have made these contributions have been university teachers. With the conviction that teaching and research are mutually dependent and that one stimulates the other, modern universities accept the responsibility of promoting research as well as providing instruction to their students. Unless medical schools can provide opportunities and facilities for their teachers to plan and develop their ideas in medical research, they will fail to attract or hold talented young graduates, and medical teaching and practice in Canada will deteriorate. This is particularly germane at the present time because in the United States there is a considerable demand for medical research scientists and attractive offers are being made to qualified Canadians to work in well-equipped laboratories supported with ample funds.

The universities make an important contribution to Canadian medical research, since in most cases they pay the salaries of senior research workers, train young scientists and provide ancillary facilities such as libraries, administrative machinery and building accommodation. In recent years, because of the strain imposed upon their financial resources by mounting costs and greatly increased student enrolments, the universities have come to depend more and more on outside sources to finance their research programs, and in particular, on the Government of Canada. Ten years ago, such support from the Federal Government was sufficient for a modest program of grants-in-aid and research fellowships. Since that time, however, the gradual increase in research funds provided largely through the Department of National Health and Welfare and the National Research Council, welcome though this has been, has not kept pace

*Report to the Honourable Gordon Churchill, Chairman, The Committee of the Privy Council on Scientific and Industrial Research by the Special Committee Appointed to Review Extramural Support of Medical Research by the Government of Canada: November 12, 1959.

with the changing pattern and increased needs of medical schools for research support.

To date the Government of Canada has contributed toward medical research through several channels. The National Research Council's Division of Medical Research has supported fundamental research and provided fellowships. The Department of National Health and Welfare supports research on public health programs through its public health research grants and encourages the provinces to use for research some of the funds allocated to them through Dominion-Provincial Health Grants. The Defence Research Board supports medical research of immediate or potential significance in matters of defence. The Department of Veterans Affairs conducts an active research program in its own hospitals. For several years, however, these agencies have been hampered by insufficient funds, and recent increases in these funds have been inadequate to meet advancing needs. The procedures involved in application for, and administration of grants are in many cases considered to be cumbersome and wasteful of time and effort.

The Committee expressed its approval of the policy adopted by the N.R.C. Division of Medical Research in its decision to channel all support through the universities and their teaching hospitals rather than committing its funds to a centralized research institute, pointing out that medical research is unique in that close association with large teaching hospitals is vitally necessary for its full development and exploitation. It cannot achieve a solid foundation unless it is related to medical education. The research spirit must permeate the teaching of medicine; in turn, teaching broadens the vision of the investigator, and this association is essential to the recruitment and training of young scientists.

As a result of its painstaking and comprehensive studies the Special Committee recorded the following conclusions: (1) that the present level of government research support falls far short of requirements; (2) that many important research projects are not supported because of lack of funds and others are restricted to a mere fraction of their potential development; (3) that present stipends for fellowships are too low and that more fellowships are required; (4) that Canadian medical schools lack funds to employ an adequate research staff; (5) that there is a need for fluid research funds to be administered by the deans in Canadian medical schools; (6) that research space is inadequate in all medical schools, in many cases imposing serious restriction on research development.

In concluding its report the Committee recommended: (1) that a Medical Research Council be created under terms similar to those of the National Research Council, as a key organization to advise the Government of Canada on policy and matters relating to medical research, to administer the funds allocated to it, to encourage and support the development of medical research in Canada and to assume among its responsibilities those now assigned to the N.R.C. Division of Medical Research; (2) that its initial budget for 1960-1961 be set at $4,000,000 with provision for substantial increments to meet the increased operational costs and inevitable growth of medical research, and to provide adequate funds for an expanded program of fellowship training, salaries for additional research workers in the universities and substantial general grants to medical schools; (3) that the Departments of National Health and Welfare, Veterans Affairs and National Defence continue to support research programs in their special spheres of interest with an advisory committee for each of these government agencies composed of scientists experienced in medical research; (4) that a co-ordinating committee be created with representatives from these advisory committees and appropriate executive officers to facilitate co-ordination of research policies and programs of these agencies; (5) that the sum of $37,000,000 be provided by the Federal Government for the erection of research buildings and facilities in Canadian medical schools and teaching hospitals.

On June 30, 1960, the Federal Cabinet approved a recommendation from the Privy Council Committee on Scientific and Industrial Research to the effect that the Government should announce that the National Research Council was being instructed to establish its Division of Medical Research at this time as virtually an autonomous subsidiary, to be designated the Medical Research Council, within the framework of the N.R.C., and that in the light of experience further consideration would be given to the time when Parliament might be asked to approve the detachment of the Medical Research Council from the N.R.C.

On November 14, 1960, the National Research Council announced the dissolution of its Division of Medical Research and the establishment of a Medical Research Council with responsibility for all activities formerly conducted by the Medical Research Division, the new Council to have virtually complete autonomy in its operations and full responsibility for policy concerning the support of medical research, functioning under the general administration of the National Research Council. The Medical Research Council has been created as an interim measure pending the government's future consideration of appropriate legislation to establish its complete independence. The membership of the new Medical Research Council as appointed by the N.R.C is listed in the report of the November meeting of the Association of Canadian Medical Colleges which will be published in an early issue of this Journal. Professor Farquharson has been appointed as its first Chairman and Dr. J. Auer, Professor of Anatomy and Associate Dean of the Faculty of Medicine, the University of Ottawa, is its Secretary.

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The vital importance of a vigorous, progressive and generously supported program of medical research to the future of Canadian medicine cannot be overestimated. It is to be hoped that this fact will never cease to be recognized by those responsible for the granting of its funds. It is reassuring that the responsibility for the co-ordination and administration of government-financed medical research has been placed in the capable hands of Professor Farquharson and the distinguished group of experienced scientists who constitute Canada's new Medical Research Council. In the onerous and frustrating problems that it must face, our M.R.C. will need the constant support and co-operation of the entire Canadian medical profession. The official support of the Canadian Medical Association has already been indicated by the Executive Committee at its October 27-28 meeting at which the General Secretary was directed to inform the Chairman of the Privy Council Committee on Scientific and Industrial Research, to indicate that the creation of the new Medical Research Council has the whole-hearted backing of the C.M.A., and to urge that its financing be provided for in the forthcoming budget both in relation to the proposed research grants and to the provision of research buildings and facilities at Canadian medical schools and teaching hospitals.

U.S. DOCTORS AND THE U.S. ELECTORATE — POLLS APART

IN comparatively recent years, mysterious genetic influences within the teeming family of medical publications have created a new and intriguing strain of journalistic mutations. Such aberrations among the literary chromosomes have resulted in the spawning of a number of sibling periodicals devoted to the up-to-date publication of goings-on in the world of medicine, printed in tabloid newspaper style and served by a worldwide network of capable medical news service correspondents, in the best traditions of the lay press.

Prominent among these medical tabloids which have come to our notice are the *A.M.A. News* ("the Newspaper of American Medicine published by the American Medical Association"), the *Medical Tribune* and *Medical News*. The editorial advisory boards of these periodicals list the names of some of the most prominent and respected personalities in the medical profession. While these papers could scarcely be recommended as reliable reference sources of profound scientific knowledge, many items in the medical tabloids provide most interesting reading. Unfettered by the shackles of dignity of the formal scientific journals, the tabloid writer is free to soar to imaginative heights and headlines in reporting his news of and for doctors. One such headline calculated to induce a quick "double-take" appeared in a recent (pre-election) issue of *Medical Tribune* where it proclaimed that ONLY PSYCHIATRISTS FAVOR DEMOCRATS.

It appears that early in October, during the peak period of the U.S. presidential campaign, *Medical Tribune Inc.* conducted a public opinion political preference poll by means of a ballot distributed by mail to physicians in private practice in the continental United States. The ballot design provided for tabulation of preferences for President, congressional and local party contestants, and 1960 presidential preferences compared with 1956 voting, in relation to physicians' ages, types of practice and location. Of 11,711 ballots returned, 8326 (71.1%) favoured the Republican presidential candidate, 2742 (23.4%) favoured the Democratic candidate and 586 (5%) were marked "undecided". Fifty-seven ballots (0.5%) left this choice unanswered.

Except for one specialty group of respondents—psychiatrists—the percentages favouring the Republican candidate were relatively constant irrespective of the physician's age, type of practice or location. Of 596 psychiatrists who filed ballots, 361 (60.6%) favoured the Democratic presidential candidate, 182 (30.5%) the Republican, 52 (8.7%) were undecided and one (0.2%) did not mark this section of the ballot. While Freud could undoubtedly have explained this phenomenon, the *Medical Tribune* pollsters made no attempt to do so.

In the matter of preferences for congressional and local candidates, the voting trends showed a marked divergence of strength from the totals for presidential choice. At these levels, of 11,550 physicians replying, 5831 (50.5%) preferred Republican candidates, 2706 (23.4%) favoured Democratic candidates, 2545 (22%) said that they would probably split their vote and 486 (4.1%) were undecided.

By the type of practice, 3955 respondents identified themselves as general practitioners and 7512 as specialists. The general practitioners favoured the Republican presidential candidate by 74.1% to 20.9%; specialists also expressed their Republican preference, 70% to 24%; 5.3% of specialists and 4.4% of general practitioner voters were undecided in their presidential preference.

One is moved to comment that, at least among the doctors of America, Mr. Nixon won in a Gallup.

A number of ballots were returned with illuminating annotations. Some of these expressed personal "write-in" preferences, including one for the poet Carl Sandburg. One offered only the cryptic but expressive comment, "Will go fishing."

CANADA HAS FIRST YEAR WITHOUT DIPHTHERIA DEATH

The year 1959 was the first full year in the medical history of Canada in which there were no deaths from diphtheria. There were only 37 cases of the disease, an all-time low, in Canada in 1959. This contrasts with 66 cases and 6 deaths in 1958 and with 2804 cases and 287 deaths in 1943.—*Medical Tribune*, October 3, 1960.

LETTERS TO THE EDITOR

INTRA-ARTICULAR CORTICOSTEROID THERAPY

To the Editor:

I am disturbed by the article "Effectiveness of Methylprednisolone and Prednisolone Tertiary-Butylacetate Intra-articularly in Rheumatoid Arthritis: A Comparative Study" in your October 15, 1960 issue (page 836). Therein Drs. Woodbury and Biechl recommend intra-articular injection of steroids.

I visit Britain annually. Last year at the Royal National Orthopaedic Hospital in London I was informed that the injection of steroids into joints had been abandoned because of atrophy of joint structures following such injections. Last month at the same hospital the position had not changed. The medico-legal implications are obvious and dangerous.

FRANK RIGGALL, M.D., F.R.C.P. & F.R.C.S.(Edin.)
Elizabeth Hospital,
Prairie Grove, Arkansas.

To the Editor:

I have injected personally a lot of joints since 1952, and have seen very few ill effects. I have not been in a position to do follow-up x-ray studies on all the joints injected, but I would defer to the opinion of those who have done a very great deal of this work.

Dr. J. L. Hollander, who has pioneered in this field, has recently, with his colleagues, reported on nine years of experience with intrasynovial steroid therapy. He feels that one is justified in regarding intra-articular steroid therapy as a standard adjunct in the treatment of arthritis. His experience extends to more than 100,000 injections of inflamed joints, bursae or tendon sheaths, and he has more than 200 patients who have had more than 100 repeated steroid injections into at least one arthritic joint. Surely nobody else has experience comparable to this, and surely Dr. Hollander's eminent position in the field of the rheumatic diseases commands our respect.

Furthermore, this matter having been discussed somewhat at the recent Second Canadian Conference on Research in the Rheumatic Diseases, I am aware that foremost Canadian rheumatologists use joint injections where indicated, with a very low proportion of adverse reactions.

There have been reports of aseptic necrosis of the heads of some bones following both systemic and local steroid therapy. These certainly give one pause, but I think that to abandon intrasynovial injections of glucocorticoids on this account would be another instance of "throwing the baby out with the bathwater".

JOHN F. L. WOODBURY, M.D.
324 Spring Garden Road,
Halifax, Nova Scotia.

LUNG CANCER: THE CIGARETTE MANUFACTURERS' LEGAL LIABILITY

A Federal court jury at New Orleans cleared Liggett & Meyers and R. J. Reynolds tobacco companies of liability in a $150,000 damage suit. Suit was brought by the widow, who claimed that her husband's death was caused by lung cancer which was due to smoking.—*A.M.A. News,* October 31, 1960.

MEDICAL NEWS IN BRIEF

PENICILLIN-RESISTANT GONOCOCCI

Until recently it was generally considered that there was no evidence indicative of the existence of penicillin-resistant strains of gonococci.

To date, gonorrhea persisting after penicillin therapy has been attributed to reinfection or to inadequate treatment. In the summer of 1958 it appeared to a group of physicians at a U.S. Navy hospital in San Francisco that the treatment of gonorrhea was becoming complicated by the appearance of gonococcal strains clinically resistant to penicillin. Eleven patients with penicillin-resistant gonorrhea were encountered over a six-month period, all of whom fulfilled the following criteria: (1) Repeat positive urethral smears occurred within 30 days of the original laboratory diagnosis. (2) The patient had been under "medical restriction" during the interval between positive smears, with no chance of reinfection. (3) The patient had received at least four daily injections of 600,000 units of procaine penicillin G following the initial positive smear. (4) The patient had no evidence of complications. These 11 cases comprised 15.3% of all gonorrhea encountered in male military personel during a six-month period at the hospital concerned. In seven of these cases the organism was resistant to penicillin *in vitro* as tested by the disc method. In four it was sensitive to penicillin *in vitro*. In two cases an infection demonstrating *in vitro* resistance to penicillin subsequently was cured by the same antibiotic. Thus the *in vitro* sensitivity and the *in vivo* clinical response did not always coincide.

In view of the fact that the penicillin regimen in these cases was more than adequate by current standards and that the patient had no opportunity for re-exposure, reinfection and inadequate penicillin dosage seemed inadequate explanations of the failure of penicillin therapy which Mead and his colleagues (*Armed Forces M. J.*, 11: 1117, 1960) attributed to the property of penicillin resistance possessed by the infecting gonococci.

ATROPINE IN REGURGITATION

Twenty-seven patients were studied by Bettarello, Tuttle and Grossman of Los Angeles (*Gastroenterology*, 39: 340, 1960), before and after administration of 1.2 mg. of atropine sulfate. Twenty-four of these patients failed to show acid regurgitation before administration of the drug. There were 11 patients with duodenal ulcers, three with gastric ulcers, two with small hiatal hernias and five with Laennec's cirrhosis; none had evidence of esophagitis. Three patients had acid regurgitation with moderately severe retrosternal burning. Fourteen patients showed acid regurgitation following the administration of atropine sulfate; in addition, most of the patients showed decrease of intraesophageal pressure after atropine. Atropine sulfate is contraindicated in the treatment of esophagitis because it may increase acid regurgitation. Urecholine was shown to reduce or prevent acid regurgitation in patients with esophagitis but the short duration of action and the associated undesirable side effects make this drug unsuitable for routine use.

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CURRENT THERAPY OF TUBERCULOSIS AND RESPIRATORY DISEASES

The nineteenth joint conference of the Veterans Administration and U.S. Armed Forces on the Chemotherapy of Tuberculosis, which was held earlier this year, devoted the major portion of its agenda to the chemotherapy of tuberculosis but extended its discussions to problems in the broader field of non-tuberculous respiratory diseases as well (*New England J. Med.*, 263: 588, 1960).

Years of previous evaluation of antituberculous drugs established isoniazid as the agent of choice for patients with tubercle bacilli sensitive to this drug. Major problems to be solved are the optimum daily dosage, the drug or drugs with which it forms the most effective combination, optimum duration of chemotherapy, and the alternative drugs that are most effective for patients whose tubercle bacilli are isoniazid-resistant. Although 200 to 300 mg. of isoniazid daily, usually combined with streptomycin or para-aminosalicylic acid (PAS), is widely used, larger amounts have been recommended. On theoretical grounds it has been suggested that patients who are rapid hepatic acetylators of isoniazid (the acetylated compound being no longer bacteriostatic) should receive larger doses combined with PAS and/or streptomycin to permit sufficiently high and prolonged blood and tissue levels of this drug to overcome this inactivation. Unusually good results were reported by some institutions using high-dosage regimens of isoniazid. The precise value of high-dosage isoniazid therapy remains to be established.

Corticosteroids may be used as one component of antituberculous therapy. They are occasionally of benefit and usually are not harmful but are of doubtful ultimate value.

In patients with resistant tubercle bacilli, occasional benefit may be expected from large doses of cycloserine or from the new, orally administered antituberculous drug, alpha-ethyl-isonicotinic thioamide (ethionamide or TH 1314), in doses of 0.5 to 1.0 g. daily.

When drug therapy is effective the results of treatment are very good whether or not the principles of rest-therapy are enforced. Amphotericin B in total doses of 0.5 to 2.5 g. administered by slow intravenous drip was of value in the treatment of pulmonary histoplasmosis and was without hazards.

No effective chemotherapeutic agents have yet become available for the treatment of lung cancer, but continued investigation is important and is being carried on in this field. Other studies of considerable interest are investigating the possible etiologic role of viruses in this disease.

AMPHOTERICIN B IN TREATMENT OF DISSEMINATED MONILIASIS

Three patients with disseminated moniliasis were treated with intravenous injections of amphotericin B. Two were apparently cured. They previously had disseminated moniliasis after abdominal surgery. Both patients had received large doses of antimicrobial drugs and adrenal steroids before the onset of moniliasis. In the first case the fungi had direct access to the blood stream through indwelling intravenous polyethylene catheters; the mode of entry in the second was not established. A third patient with rheumatic heart disease developed fatal monilial endocarditis after mitral commissurotomy, the infection apparently having been introduced at the time of surgery. Each of the three strains of the offending organism isolated from the blood stream was inhibited by a small concentration of amphotericin B *in vitro*.

Louria and Dineen (*J. A. M. A.*, 174: 273, 1960) point out that in the third patient with severe underlying valvular heart disease, it seemed likely that the micro-organism was located within vegetations on the deformed mitral valve. It has been repeatedly emphasized that under such conditions antimicrobials which kill micro-organisms rather than those which only inhibit growth are desirable. Blood concentrations of amphotericin fungicidal for these strains of Candida cannot be achieved at the currently employed dosage levels. It is not surprising therefore that therapy failed in this patient with rheumatic valvular stenosis and superimposed subacute monilial endocarditis.

(Continued on advertising page 28)

ASSOCIATION NOTES

HOUSING ARRANGEMENTS FOR THE 94TH ANNUAL MEETING
Montreal, June 19-23, 1961

Members planning to attend the 94th Annual Meeting are urged to apply, as soon as possible, for hotel accommodation in Montreal. Applications may be made direct to one of the hotels or motels listed on page 1274, using the Housing Application Form found in this and subsequent issues of the Journal. The hotel or motel concerned will confirm housing reservations direct, as the improved hotel situation in Montreal compared with recent years has eliminated the necessity for a Chairman of Housing who previously has confirmed housing accommodation.

Members of the General Council, speakers, senior members, and exhibitors will have their housing reserved through the General Secretary, 150 St. George Street, Toronto 5, Ontario. Special forms will be distributed to members of these groups as soon as they are identified in order to obtain details of accommodation required.

The Montreal Meeting is expected to be a large and interesting one. A full program of scientific sessions and social activities has been planned by our Montreal colleagues for your enjoyment, the details of which will appear in an early issue of the Journal. Make your housing application early and avoid possible disappointment later on.

HOUSING APPLICATION FORM

The Canadian Medical Association

94th ANNUAL MEETING - June 19 - 23, 1961

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Apply direct to the:

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Address:.....

Please reserve the following accommodation (check): (All rooms have baths and/or showers.)

Single bedroom..... Twin bedroom.....

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Suites for two persons (bedroom and parlour).....

Suites for four persons (2 bedrooms and parlour).....

Family Plan—no charge for children under 14.....

In view of the large attendance expected, it might be to your advantage to share a room with another member. Please mention below the names of the persons with whom you would like to share your accommodation; otherwise assignment will be suggested by the Committee on Arrangements.

I (we) will arrive in Montreal on June.....at.....A.M.....P.M.

I (we) will depart from Montreal on June.....at.....A.M.....P.M.

Travelling by: Air..... Train..... Automobile.....

NAMES OF PERSONS OCCUPYING ACCOMMODATION REQUESTED ABOVE:

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ADDRESS(ES).....

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TELEPHONE No.....

N.B.—(1) A list of hotels and motels is shown on the following page with daily rates.

(2) Confirmation of housing will be made direct from hotel or motel.

THIS WILL CONSTITUTE YOUR ADVANCE REGISTRATION FOR THE MEETING.

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HOTELS AND MOTELS AVAILABLE FOR THE ANNUAL MEETING

Montreal, Quebec, June 19 - 23, 1961

Daily rates

THE QUEEN ELIZABETH:
Dorchester St. West,
Montreal, P.Q.

Single Bedrooms	$10.00 to $20.00
Twin Bedrooms	14.00 to 20.00
Two-room Suite (parlour and bedroom)	36.00 to 50.00
Three-room Suite (parlour and bedroom)	57.50 to 70.00
Four-room Executive Suite (parlour, 2 bedrooms and dining room)	90.00 to 110.00
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No charge for children 14 years of age and under, if sharing same accommodation as parents.

Free Parking.

THE SHERATON-MOUNT ROYAL HOTEL:
1455 Peel Street,
Montreal, P.Q.

Room and Bath for one	$ 8.50 and up
Double Beds for two	12.00 and up
Twin Beds for two	13.85 and up
Suites for one person	24.50 and up
Suites for two persons	28.00 and up
Suites (2 rooms-parlour) for four	44.00 and up

Family Plan—Free Parking.

LAURENTIAN HOTEL:
Dominion Square,
Montreal, P.Q.

Single Bedrooms	$ 8.50 to $ 9.50 to $10.00
Double Beds	12.00 to 12.50
Twin Beds	12.50 to 13.00
Suites for one or two	21.00
Suites for four	36.50

Daily rates

WINDSOR HOTEL:
Peel Street,
Montreal, P.Q.

Single Bedrooms	$10.00 and up
Double Bedrooms (including twin beds)	14.00 and up

RITZ-CARLTON:
1228 Sherbrooke Street West,
Montreal, P.Q.

Single Bedrooms	$13.00 to $15.00
Double Bedrooms (including twin beds)	16.00 to 18.00

ROYAL EMBASSY:
Peel and Sherbrooke Streets,
Montreal, P.Q.

Single Bedrooms	$13.00 and up
Double Bedrooms (including twin beds)	18.00 and up

QUEEN'S HOTEL:
700 Windsor Street,
Montreal, P.Q.

Single Bedrooms	$ 6.00 to $ 7.00 and $ 8.00
Double Bedrooms (including twin beds)	$10.00 to $11.00 and $12.00

MOTELS:

MOTEL PIERRE:
2375 Laurentian Blvd.,
Montreal, P.Q.

Single Bedrooms	$ 7.50
Double Bedrooms (including twin beds)	9.50 and up
Twin beds	10.50 and up

AU LUCERNE MOTEL:
4950 Sherbrooke Street East,
Montreal, P.Q.

Single Bedrooms	$12.50 and up
Double Bedrooms (including twin beds)	14.00 and up

PASSAGE TO INDIA

GLEN G. SMITH, B.A., M.D., F.R.C.S.[C],*
Vancouver

UNDER THE AUSPICES of the Evangelical Medical Missionaries' Aid Society, and with the financial assistance of the Canadian Supporting Committee to the World Medical Association, I was privileged to visit many medical centres in the great subcontinent of India during the late autumn of 1959. My purpose was to survey at first hand some of the Indian Government medical institutions and many of our own Canadian and American medical missionary establishments, and to ascertain how best we of the western world can contribute and assist our brother physicians in their uphill battle to improve the medical care for the myriads of villages dotting the landscape.

One of the problems of the Indian Government is similar to our own: the medical graduates gravitate to the larger cities with better hospital facilities, leaving the more isolated rural areas with meagre trained help.

Coming from Canada, one cannot help but be impressed by the immensity of the task facing the Government of India. Perhaps two of the most urgent problems, the improvement of sanitation and the availability of basic medical care, are complicated by the high rate of illiteracy in a teeming population. It has been accurately estimated that the population of India is increasing by more than 8 million each year. In spite of the seemingly impossible odds, the governmental bodies are attacking their problems with vision and courage, and even at this early stage real progress is being made in many areas. The standard of literacy is being elevated by greatly increasing the number of schools and teachers and, in some suitable localities, even by making elementary education compulsory. Importation of foreign products, formerly so prevalent, has been severely restricted in an effort to stimulate the local development of industry. Temporarily, this is working a hardship on many missionary hospitals attempting to maintain their inventory of drugs and equipment. Under this new policy, a host of items previously obtained from other countries are now available on the local Indian market. In recognition of the importance of raising the living standards of the masses by controlling disease and supplying at least basic health facilities, a vast program to increase the numbers of physicians, nurses and midwives has been initiated. Medical schools have begun to dot the country and already are turning out great numbers of native physicians.

This great increase in the number of medical schools has sorely taxed the supply of available teachers and heads of departments for these many institutions of learning. Not a few men with specialty qualifications from various parts of the Commonwealth, and some from other lands, have found truly challenging assignments as department heads in these new government medical schools and some older ones. It is my impression that physicians from the West can contribute greatly in this manner to the development of Indian medicine and thus to the betterment of the standard of living of the Indian nation. Indeed, I am sure that there are medical men across our land who have practised a specialty and taught on a university faculty for some years, and are at present considering retirement. If these men could see fit to transplant their lives and energies to India for a short-term period of perhaps two to five years, and could work towards the development of a department, and the training of Indian residents who could subsequently assume the burdens of this work, I am sure that the satisfaction of such an effort would be reward enough in itself, and the benefit to India would be immeasurable. From my short contact it was obvious that pediatricians, urologists, and chest surgeons are sorely needed.

On my Indian itinerary I visited Colombo, Madras, the world-famous Christian Medical College at Vellore, Calcutta, four centres in the province of Assam, Patna, Benares, Delhi, the Christian Medical College at Ludhiana, Shrinagar in Kashmir, and some points in West Pakistan. I was fortunate in being able to take four excellent medical films with me, and in most of the areas the films were shown to groups of native physicians and nurses. The English tongue is widely understood, so that communication is no problem.

I was very graciously received in almost every centre, and the free discussions and questions directed to me indicated true interest on the part of the native physicians. In many of the smaller areas and mission hospitals I found that bedside clinics and demonstrations were enthusiastically received. In the province of Assam, my visit was planned to coincide with the annual meeting of the white and Indian physicians of that area. It was indeed stimulating to listen to the recounting of their work and problems and to contribute some formal lectures and hold many informal discussions with the local groups. In a few areas where my stay was extended, it was possible to do some operative work as well and to provide some help with newer techniques and procedures. Doctors in the more isolated mission hospitals welcome the presence of a brother physician from Canada. Together, we often talked long into the night about some of the newer developments in medical practice. In the morning we walked through the small hospital wards and decided specific problems. It was refreshing for the host physician and a unique thrill for me.

The two large Christian Medical Colleges, one at Vellore and one at Ludhiana, staffed by non-Indian personnel, are indeed a credit to the western world and its missionary program. Each year, they are producing some fine Indian physicians to help supply the people of India with badly needed medical care. The doctors and nurses in these institutions are devoted men and women whose material gain is small but whose reward must be measured in terms of the young lives moulded along a course that will result in the relief of misery and disease for the multitudes of India.

Reflecting upon the value of the contribution that a doctor from Canada can make in a short visit to India, it seems evident that the greatest benefit would accrue from a more prolonged stay in a relatively few centres rather than a short visit to many areas. Certainly the missionary physicians welcomed this attempt on the part of the Canadian doctors to strengthen their efforts. The Canadian Supporting Committee to the World Medical Association, with its vision and initiative, is making a practical approach to the problem of human relations in many of the underdeveloped areas of the world, and the author's sincere gratitude is extended to this Committee for the generous contribution which made possible this assignment in India.

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EXECUTIVE COMMITTEE MEETING, OCTOBER 28 AND 29, 1960

The Executive Committee of the Canadian Medical Association met at C.M.A. House, Toronto, on October 28 and 29, 1960, with Dr. M. S. Douglas in the chair. Following the roll call, the chairman welcomed Mr. C. M. Reside, the Association's accountant-office manager, and Dr. P. Bruce-Lockhart, attending in place of Dr. W. W. Baldwin who was unable to be present.

After passing an amendment concerning the mode of recording the unanimity of acceptance of the resolution described in para. 1157 of the minutes of the last meeting, these minutes were adopted as amended.

General items of business arising from the minutes were then considered. As directed at the June meeting of the Executive Committee, the General Secretary contacted the Soviet Ambassador to discuss means of facilitating travel of Canadian physicians to Russia, and of Russian physicians to Canada, for the purpose of visiting medical centres of interest in the respective countries. Dr. Aroutunian assured the General Secretary that doctors travelling to Russia should encounter no difficulties if they would first register with a reputable Canadian travel agent and outline their desired itinerary. The General Secretary recommended establishment of a small committee to advise and assist Canadian doctors proposing to travel in Russia and proposed that the Soviet Academy of Medical Sciences should be the medical body in Russia with whom negotiations should be conducted in this regard. It was further recommended that the C.M.A. should be prepared to provide hospitality for Russian doctors visiting Canada. This report was received for information by the Executive Committee, who directed that this matter be left in the hands of the General Secretary, appropriate notices being inserted in the *C.M.A. Journal* as indicated.

At the June meeting of the Executive Committee it was reported that the Government of Newfoundland has required that doctors in the outports, whom the government regards as civil servants, sign oaths of allegiance and secrecy regarding any information encountered in the course of their duties. On direction of the Committee, the General Secretary sought the advice and opinion of the Association's solicitor on this matter, at C.M.A. expense. Unfortunately this opinion was of little assistance to the Newfoundland Division, which, on further advice from its own legal counsel, has prepared a brief based on its solicitor's opinion that the outport doctors are not civil servants in the meaning of existing legislation. This brief was presented to the appropriate ministry, who then forwarded it to the Crown lawyers. The latter have not as yet handed down their decision. There are about 50 physicians in the outports, some of whom have been at these posts for 25 years. Though they consider themselves contracting physicians rather than civil servants, many have signed the allegiance and secrecy oath under pressure. The aim of the Newfoundland Division is to have the oath rescinded on the grounds that the outport doctors are not civil servants. The majority of these 50 doctors replying to a questionnaire mailed to them from the Division indicated that they do not wish to be classed as civil servants and desire the Division to act for them in attempting to have their status as such rescinded. The General Secretary recommended that a study be made in an attempt to define the proper relationship between a physician and his paying agency when the doctor is providing medical service but is being paid by an employer. The Executive Committee authorized such a study, for which the Chair appointed a consultant committee composed of Drs. J. A. McMillan, J. B. Roberts and R. O. Jones.

As directed at the June meeting, the General Secretary had consulted the Association's solicitor with a view to making such editorial changes in the C.M.A. Statement on Medical Services Insurance as appeared indicated from the legal point of view. Again, the legal advice obtained had not been helpful. It was suggested that the C.M.A. Committee on Economics might study this statement at their forthcoming meetings with a view to recommending such alterations as they consider advisable.

Dr. A. F. W. Peart reported on the wide distribution and generally favourable reception of the Sickness and Accident Claim forms jointly approved by the C.M.A. and the Canadian Health Insurance Association. These have also been approved and accepted by most of the insurance companies. It is expected that they may be subjected to some revision and improvement in the next year.

The General Secretary reported that His Excellency Governor General Georges Vanier had accepted Honorary Membership in the Association, and it is anticipated that his installation will be a highlight of next year's annual meeting in Montreal.

President's Report of Annual Divisional Meetings

Dr. Parsons reported that since the annual meeting in June, he and Mrs. Parsons had attended seven Divisional meetings, and represented the C.M.A. at the International Congress of Anesthesiologists in Toronto, the ceremonies associated with the sod-turning for the Prairie Foothills General Hospital by the Honourable J. Donovan Ross in Calgary, the meeting of l'Association des Médecins de Langue Française du Canada in Windsor, Ontario, and the dinner of the Toronto Metropolitan Chapter of the College of General Practice in honour of Professor R. F. Farquharson. After commenting on the highlights of these occasions, Dr. Parsons expressed his gratitude and appreciation to the members of the Secretariat and their wives who accompanied him on various phases of the Presidential tour, and to the Divisions concerned, through their respective executive members, for their hospitality to the President and his wife.

Annual Meeting, Montreal, June 19-23, 1961

The President-elect, Dr. G. W. Halpenny, outlined arrangements for the 94th annual meeting to be held in Montreal, June 19-23, 1961. It is planned that General Council will meet on the Monday, Tuesday and Wednesday of the week of the annual meeting, with no evening sessions. A four-day program is being arranged for Tuesday, Wednesday, Thursday and Friday, the last day being devoted to sessions on medical economics. Teaching sessions in the form of panel discussions are planned for Tuesday and Wednesday. Thursday morning will be devoted to other panel discussions, the Lister Lecture and the President's Valedictory. The advisability of leaving one afternoon free was discussed without a firm decision being reached at this time. The affiliated societies have indi-

C.M.A. Executive Committee, October 1960

Seated (left to right): Dr. G. E. Wodehouse, Toronto; Dr. M. S. Douglas, Windsor; Dr. R. M. Parsons, Red Deer, Alta.; Dr. G. W. Halpenny, Montreal; Dr. E. K. Lyon, Leamington, Ont. Standing (left to right): Mr. K. C. Cross, Toronto; Mr. C. Reside, Toronto; Dr. A. F. W. Peart, Toronto; Dr. E. F. Crutchlow, Montreal; Dr. E. R. Stewardson, Moose Jaw, Sask.; Dr. D. C. Graham, Toronto; Dr. P. O. Lehmann, Vancouver; Dr. T. C. Routley, Toronto; Dr. J. A. McMillan, Charlottetown; Dr. H. P. Melanson, Moncton, N.B.; Dr. R. O. Jones, Halifax, N.S.; Mr. B. E. Freamo, Toronto; Dr. R. H. McCreary, Arnprior, Ont.; Dr. P. Bruce-Lockhart, Sudbury, Ont.; Dr. A. A. Haig, Lethbridge, Alta.; Dr. R. W. Richardson, Winnipeg; Dr. J. B. Roberts, St. John's, Nfld.; Dr. T. J. Quintin, Sherbrooke, P.Q.; Dr. R. Lemieux, Quebec; Dr. A. D. Kelly, Toronto. (Dr. W. W. Wigle of Dryden, Ont., and Dr. W. W. Baldwin of Brooklin, Ont., were not present when this picture was taken.)

cated that plans already completed for their own meetings would not permit these to be held in conjunction with the annual C.M.A. meeting in the majority of cases. Only the Canadian Thoracic Society has to date indicated intention to hold its 1961 meeting in Montreal at the time of the C.M.A. Meeting. After considerable discussion, the Executive Committee, on motion, directed that the Program Committee be requested to consider arrangements for a trans-Atlantic televised panel discussion on a suitable scientific subject rather than a topic in the field of medical economics. It was considered that the latter subject could be covered more effectively by a carefully selected guest speaker who should be invited to deliver such an address in person. Dr. Halpenny concluded his report by outlining tentative plans for social and ceremonial aspects of the program.

World Medical Association

The Executive Committee received the reports of its delegates to the 14th General Assembly of W.M.A., Drs. Morley Young and Norman Gosse. The proceedings of the Assembly which was held in Kongresshalle, West Berlin, September 15 to 22, have been reported in a previous issue of this Journal (*Canad. M. A. J.*, 83: 1024, 1960).

There was some question in the opinion of the C.M.A. delegates as to whether the considerable investment occasioned by the current C.M.A. contribution is worth while, and whether support should be continued at this level. Drs. Young and Routley remarked that W.M.A. has an important role to fill in world medical affairs and merits continued Canadian support. At the 13th Assembly in Montreal, a committee had been appointed to study and report on the structure and general operation of W.M.A. This report was presented to Council at its Berlin meeting, but since it contained many complex views and since it was only completed on the last day of the Council meeting, Council wished to give it more careful consideration before presenting the report in its entirety to the Assembly. Dr. Routley commented that Council expected to complete its deliberations on this report within a few months of last September's meeting, at which time it would be submitted by mail to the member associations.

Canadian Supporting Committee to W.M.A.

As of this date, the assets of the Canadian Supporting Committee to W.M.A. are $4825.32. The executive of the Supporting Committee have voted $4000 of this sum to the C.M.A. as reimbursement for that portion of this Association's contribution to W.M.A. On motion, the Executive Committee directed that at its next meeting consideration should be given to the sum which should be budgeted for as the 1961 C.M.A. contribution to W.M.A.

Delegates to the British Commonwealth Medical Conference and Annual B.M.A. Meeting

Dr. T. J. Quintin was appointed as C.M.A. delegate to the British Commonwealth Medical Conference at Auckland, New Zealand, on February 1 to 4, 1961, and to the annual B.M.A. meeting in the same city, February 6 to 10, 1961. Travelling expenses for the delegate and his wife are to be provided by the Association in accord with its present formula of allowances.

Delegation to Study and Report on the Australian Government Medical Care System

The Executive Committee further appointed Dr. Quintin as its delegate to visit Australia following the aforementioned meetings in New Zealand, for the purpose of studying the Australian government medical care system. In addition, it was directed that Mr. B. E. Freamo, C.M.A. Assistant Secretary, Economics, be

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sent to Australia to study the system of health insurance with Dr. Quintin. Approximately one month was authorized for this study and Mr. Freamo was directed to schedule his arrival in Australia and to begin his investigations several days before Dr. Quintin joins him from New Zealand. Travel and subsistence allowances were authorized for Mr. and Mrs. Freamo on the scale presently provided for members of the Secretariat and their wives.

Canadian Conference on Health Care—October 31, 1960

The Committee accepted for information Dr. J. A. McMillan's report that the Canadian Conference on Health Care would meet at C.M.A. House, Toronto, on October 31, 1960, at which time a statement of purpose for the Conference would likely be ratified. Drs. A. D. Kelly and J. A. McMillan will act as Chairman and Secretary of the Conference until the end of this year, at which time they will be succeeded by representatives from other member organizations. Trans Canada Medical Plans will be represented at the meeting but have not yet decided to join the Conference as a member.

Committee on Organization

Dr. P. O. Lehmann, Chairman of the Committee on Organization, reported that, as authorized at the June meeting, a management consultant firm, Woods, Gordon and Co. of Toronto, had been employed to appraise the administrative functions of the Association, particularly in regard to the organization and distribution of responsibilities among the senior secretarial and publications staff. Detailed excerpts from the report were read at the meeting of the Executive Committee, the members of which had previously received the complete report in advance of the meeting. The following recommendations of the Committee on Organization were passed by vote of the Executive Committee.

In view of anticipated increased demand on the Bureau of Economics, it is recommended to the Staffing Committee that an assistant be employed in this department. With an adequate staff, it was suggested that the services of the Bureau of Economics could continue to be made available to C.M.A. Divisions on request, a facility which would greatly enhance the prospect of a united attitude of the profession on issues of economics.

The staff was directed that no change was to be made in the responsibilities and lines of communication of the Secretariat and Publications department or in the present status of the position of Managing Editor.

It was recommended that the Assistant Secretaries, Economics and Public Relations, attend the meetings of both these committees to facilitate more effective rapport.

The following changes in titles of C.M.A. staff officials were adopted: Assistant Secretaries, Economics and Public Relations, to become, respectively, Secretaries, Economics and Public Relations; Editor to become Editor, C.M.A. Publications; Assistant Editor to become Associate Editor; and Accountant-Office Manager to become Comptroller.

The Secretariat was authorized to survey the field of public relations consultants and recommend to the Executive Committee a suitable firm that might be employed as consultants on a limited basis.

The report of Woods, Gordon and Co. was received for information.

Annual Meeting Arrangements

It was directed that the following recommendations from the Committee on Organization be drawn up in document form for study at the next Executive Committee meeting:

That General Council meet for three successive days, not to include evening or Sunday sessions.

That affiliated and sectional societies be encouraged to meet in conjunction with the annual C.M.A. meeting and be responsible for the scientific component of the program.

That scientific sessions should not overlap meetings of General Council for more than one day.

That the C.M.A. be responsible for one General Session at which the endowed lecture would be given.

That affiliated societies should not hold business meetings coincident with meetings of General Council.

That the C.M.A. be responsible for the social program except for those of the affiliated societies.

That a Resolutions Committee be appointed prior to the meeting of General Council, composed of approximately five members, who need not necessarily be members of the Executive Committee.

Staffing Committee

Individual negotiations have been undertaken to fill the vacancy of the post of Assistant Editor created by the resignation of Dr. M. R. Dufresne but to date these have not been successful. The need for an Assistant Editor fluent in the French language was stressed, to permit the publication of articles and possibly also of editorial contributions in French. It was proposed that if it were not possible to recruit a bilingual Assistant Editor in the near future, an English-speaking doctor should be employed to fill this vacancy on the editorial staff with a view to subsequent part-time employment of a French-speaking Assistant Editor who might work part-time for the Quebec Division. Dr. Lemieux was requested to explore the possibility of locating a suitable candidate for this position, in France.

Public Relations

Dr. E. F. Crutchlow, Chairman of the Public Relations Committee, reported that a Public Relations Workshop would be held in Montreal on November 18 and 19, at which Mr. J. W. Foristel, a leading legal adviser to the American Medical Association in Washington, would be an after-dinner speaker.

It was also directed that Dr. H. M. Horner, Member of Parliament for Jasper-Edson, be invited to attend this Workshop as guest of the C.M.A.

A second series of one-minute C.M.A. filmettes on the subjects of Obesity, Accidental Poisoning in Childhood, and Physical Fitness were viewed and approved by the Executive Committee.

The Committee agreed that no action should be taken at present on the suggestion that Dr. A. A. Klass' article "Why Do Patients Sue Their Doctors?" be transmitted to Members of Parliament and the Senate.

Honoraria For the President and Executive Committee

As directed by resolution of General Council at its June meeting, a study committee consisting of Drs. Lyon, Wigle and Lemieux and the Honorary Treasurer was appointed "to consider the financial aspects of the Presidency and the Executive Committee and the question of recognition of meritorious service". In accord with the recommendations of this study committee, presented by Dr. E. K. Lyon and adopted by motion of the Executive Committee, the following scale of allowances was established, to be effective as of this meeting:

President.—An expense account of $35 per day for every day spent on Association business, inclusive of travel time.

If accompanied by his wife, an expense account of $70 per day, applicable to all occasions on which the President represents the Association in addition to the Presidential tour.

Expenses for all refreshments incurred at cocktail parties given by the President and his wife on behalf of the Association and for room accommodation for such entertainment when required, such expenses to be undertaken after consultation with the Secretariat.

Travel expenses for the President and his wife to cover rail fare plus bedroom, plane fare plus limousine or car, or automobile expenses at the rate of 10c per mile, both ways.

All Past Presidents.—Air or train fare plus bedroom to the annual meetings of General Council and hotel maintenance during General Council meetings at a rate of $25 per day.

Executive Committee.—An expense account of $35 per day for every day spent on Association business, for Committee members resident in the city where the meeting is held as well as for those from out of town.

Additional recommendations of the study committee approved by the Executive Committee included:

The provision of travel expenses for the wives of the General Secretary and Deputy General Secretary to permit them to accompany the fall tour of the Presidential party and to attend the annual meeting.

The establishment of terms of reference for the award of a gold medal to members of the Association for outstanding and meritorious service, similar to those awarded by the British Medical Association for this purpose. This recommendation was referred to the Committee on Awards, Scholarships and Lectures, to be brought forward at the next Executive Committee meeting.

Presentation of a suitable lapel pin made up as costume jewelry with a caduceus as its central theme, to the wife of the retiring President in lieu of the usual presentation of a floral bouquet on the occasion of the annual meeting.

The study committee did not consider that the principle of payment of an outright honorarium or salary to the President of the Association would be appropriate or advisable.

Conference on Physical Fitness

A conference on physical fitness is planned for early 1961 in Toronto. It is expected that this will be attended by 10 to 12 delegates from the C.M.A. Division and by a similar number of key physical educationalists representing the Canadian Association of Health, Physical Education and Recreation. Payment of expenses for C.M.A. delegates to this conference was approved.

The C.M.A. Executive Committee at work.

Income Tax

The C.M.A. Committee on Income Tax under the chairmanship of Dr. N. J. Blair is particularly concerned at present with the resolution passed by General Council in June, instructing the committee to seek recognition of postgraduate refresher courses as legitimate deductible expense from income tax. The committee feels that these courses of two to thirty days' duration should not be considered capital expenditures, and has requested authority to pursue this matter further by holding a meeting in Ottawa, and later seeking appointment with the Minister of Finance to discuss this subject. This report was received by the Executive Committee for information.

Report of the Honorary Treasurer

The budget for 1961 as presented by the Honorary Treasurer was adopted. Anticipated 1960 revenue amounts to $252,464 for the Secretarial Offices, $529,877 for the *C.M.A. Journal* and $25,559 for the *Canadian Journal of Surgery.* Anticipated 1960 expenditures amount to $321,214 for the Secretarial Offices, $497,707 for the *C.M.A. Journal* and $20,383 for the *Canadian Journal of Surgery.* The 1961 budget provides for revenues of $263,000 for the Secretarial Offices, $534,000 for the *C.M.A. Journal* and $28,000 for the *Canadian Journal of Surgery* with 1961 expenditures budgeted as $314,514 for the Secretarial Offices, $516,090 for the *C.M.A. Journal,* and $27,950 for the *Canadian Journal of Surgery.* Building operations entail anticipated net costs of $30,244 for 1960 and $23,349 for 1961. The Canadian Medical Retirement Savings Plans has anticipated 1960 revenues of $23,502 and expenditures of $12,344. Its 1961 budget provides for revenues of $24,000 and expenditures of $14,280. After some discussion regarding the surplus revenues in C.M.R.S.P. funds, it was proposed that this matter be further considered at the spring meeting of the Trusteeship Committee. The Association's 1961 budget also includes an item of expenditure in the amount of $13,500 to provide for costs of Special Committees of the C.M.A.

The Executive Committee approved the Honorary Treasurer's recommendation that the nucleus of the Trusteeship Committee, comprising Drs. T. T. Samis, E. W. Mitchell and G. E. Wodehouse, constitute the

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Finance Committee for 1961. This nucleus group meets at least four times yearly at present and it was considered that advantage could be taken of this situation to permit the Honorary Treasurer to seek advice on matters of financial policy, investments, etc., relating to C.M.A. reserve funds.

Report of the Editor

The Editor presented a documented report to the Executive Committee. Special editions of the *C.M.A. Journal* are planned for publication on January 7, 1961, in commemoration of the Journal's 50th anniversary, and in the form of the annual education number, early in April 1961. The conversion to weekly publication has not apparently resulted in any appreciable shortage of supply of scientific papers of adequate or superior quality to date, although the long-term effects may not be evident for some time. The Editor emphasized his appreciation of the need for proper balance in the contents of each issue of the Journal, with articles of practical interest and value to physicians in practice being considered components equally as essential as reports of original clinical observations and research. The former type of paper is all too rarely submitted voluntarily and usually has to be commissioned.

The *Canadian Journal of Surgery* appears to be in a thriving and healthy state of development under the capable guidance of its vigorous editorial board. Consideration may soon be required regarding the advisability of increasing the number of issues from four to six per year, but for 1961 at least, publication will continue on a quarterly basis.

The major vacancy in editorial staff created by Dr. Maurice Dufresne's departure has not yet been filled despite considerable efforts and negotiations in this regard. The editor emphasized that the early acquisition of a French-speaking associate editor is now a matter of considerable urgency, not only to permit fulfilment of the Journal's obligations as a bilingual publication but also because of the fact that an editorial staff of an editor and one associate editor is quite inadequate for the production of a first-class weekly journal covering all aspects of medicine, as well as a rapidly growing quarterly surgical journal. It was recommended that advertisements calling for applications for the post of associate editor be inserted in the *C.M.A. Journal,* as well as in *l'Union Médicale du Canada* and *Laval Médicale.*

Report of the Managing Editor

The Managing Editor presented detailed financial statements for the C.M.A. publications covering the first nine months of the year. Net profits for the *C.M.A. Journal* and the *Canadian Journal of Surgery* were $48,967 and $9176 respectively for this period.

The Executive Committee, on motion, directed that: (1) a Journal reserve fund be established from profits, the objective and annual contributions to this fund to be suggested by the Association's auditors; (2) advertising rates for the C.M.A. publications be increased by 15% effective January 1962; (3) the subscription price of the *C.M.A. Journal* be increased from $12 to $15 per year effective January 1962, or for new subscriptions, effective mid-1961; (4) the non-resident membership fee, which has always been set at the same rate as the Journal subscription rate, be increased to $15 in 1961.

Medical Economics

Dr. E. R. Stewardson reported at length on the current situation in Saskatchewan. The voluntary special assessment of $100 per member by the College of Physicians and Surgeons netted over $60,000. This was subsequently augmented by a $35,000 contribution from the C.M.A. The Division has a credit balance of $26,000. It is estimated that increased funds will be required to cover next year's operations but it is anticipated that an increase in membership fees to $125 should meet these needs.

The major activities of the Saskatchewan Division since the annual C.M.A. meeting in June have been in the preparation of a brief outlining the Division's recommendations concerning the provision of medical services in that province. Shortly after the annual C.M.A. meeting, the Regina Information Office was closed and moved to Saskatoon, where it was renamed the Steering Committee and took on the preparation of the aforementioned brief with the assistance of members of the C.M.A. Secretariat. The Saskatchewan Division are embodying within their brief the belief that subsidies for health care should be provided from government funds for those over 65 years of age who are not indigent but who belong to low income groups, for the chronically ill, and for all persons with low income levels. Definition of need in such cases, a matter which is difficult to determine, should be carried out at municipal rather than provincial government level. It is hoped that the concepts embodied in the briefs being submitted from various sections of the province may be incorporated in a single document representing a unified recommendation from the profession throughout the province. It appears that physicians from the Swift Current district favour compulsory participation in medical care programs, a concept opposed by most other doctors throughout Saskatchewan, and the Swift Current physicians desire 50% representation on the local regional health board. In the event that a province-wide medical care plan is adopted, the Swift Current doctors consider that complete fiscal autonomy and control should be vested in the local district, a concept contrary to the present government's policies. Mr. Freamo reported that after careful study of the Association's recently developed Statement on Medical Care Services, the Saskatchewan Division agreed that the broad terms of reference of this Statement were compatible with their aims. Arising from this statement, the Saskatchewan Division will incorporate in its brief the recommendation that comprehensive compulsory coverage for all citizens is not necessary and that government, in its own interest, should confine its services to the subsidization of medical care for those unable to provide such care for themselves. The Executive Committee directed that the C.M.A. offer the services of the Secretariat to the Saskatchewan Division during the presentation of its brief to the Saskatchewan government, and stipulated that the nationally elected officers of the Association should not be present on this occasion.

Dr. Stewardson's report was accepted for information, after which he expressed the sincere appreciation of the Saskatchewan Division to the C.M.A. and its

Executive Committee for the assistance provided in the form of financial contributions and the services of its Secretariat in helping with the preparation of the Division's brief.

Medical Research Council

Dr. G. W. Halpenny outlined the background of the study conducted by the "Special Committee Appointed to Review Extramural Support of Medical Research by the Government of Canada" after constitution of this committee under the chairmanship of Professor R. F. Farquharson, in February 1958, by the Hon. the Minister of Trade and Commerce, in his capacity as Chairman of the Privy Council Committee on Scientific and Industrial Research. This committee's report has now been completed and submitted to the Minister. The Executive Committee directed the General Secretary to write to the Hon. Mr. Churchill informing him that the recommendations embodied in the report of Professor Farquharson's committee have the strong support of the Canadian Medical Association, which specifically urges that the financing of a Medical Research Council be provided for in the forthcoming government budget, both in relation to an annual grant for research projects in the proposed amount of $4,000,000 and to the provision of buildings and facilities at Canadian medical schools and affiliated hospitals in the proposed amount of $37,000,000.

Questionnaire on Health Insurance

Dr. J. A. McMillan reported that at the June meeting of General Council, the Association was directed not to release statistics or conclusions regarding Sections 22, 23 and 24 of the C.M.A. Questionnaire on Health Insurance until the validity of such data was further rechecked. The answers to these questions have not been released to date. The Executive Committee directed that these three questions from the Questionnaire and the answers received be referred back to the Committee on Prepaid Medical Care for re-study and recommendation as to the validity and disposition of the statistical data derived from the replies received. A motion to this effect was carried, with one vote opposed. This matter will be studied at the next meeting of the Committee on Prepaid Medical Care which is scheduled for early December. It was stated that a brief report, and the complex I.B.M. records dealing with the first 21 questions of the questionnaire, have been submitted to each C.M.A. Division.

Canadian Medical Retirement Savings Plan

A report that the Trusteeship Committee of C.M.R.S.P. had held a highly satisfactory meeting on September 10, 1960, was accepted for information.

Canadian Medical Equity Fund

The pamphlet describing the Canadian Medical Equity Fund which is provided as a supplement to the Canadian Medical Retirement Savings Plan was distributed in mid-October to Canadian physicians with the exception of those in the Province of Quebec where it is intended to supply this pamphlet in both French and English as soon as translation is completed. About 150 replies have been received as a result of this mailing, indicating that there may be considerable interest in this type of supplementary investment plan.

Matters of Economic Interest from the Provinces

The Executive Committee then entertained discussion of matters of interest in the field of medical economics pertaining to the individual Divisions of the C.M.A. as introduced by the representatives of the Divisions on the Committee.

The Executive Committee also
1. *Received for information*:

(a) The report of Drs. R. W. Richardson and J. A. McMillan, C.M.A. representatives to Trans Canada Medical Plans, concerning the last meeting of T.C.M.P. in June and its next scheduled meeting on December 2 and 3. T.C.M.P. will be represented at the forthcoming Canadian Conference on Health Care, after which their decision regarding membership in that organization will be made.

(b) Dr. P. O. Lehmann's report that the B.C. Division has changed its by-laws to permit affiliation of a group of 12 to 15 physicians in the Yukon who have constituted the Yukon Medical Society.

(c) The announcement of a meeting of representatives of the College of General Practice and the Royal College of physicians and Surgeons of Canada on November 12, for the purpose of discussion of a brief submitted by the College of General Practice.

(d) A letter from the Bursar of London House thanking the C.M.A. for its donation of $1500 towards provision of a guest room and enclosing photographs of the framed vellum commemorating this gift.

(e) A letter from Dr. and Mrs. E. R. C. Walker of Edinburgh, expressing their appreciation of the courtesy and entertainment extended to them during their visit to Canada last summer in association with the annual meeting.

(f) A letter from the Canadian Red Cross Society expressing appreciation of the contribution from the C.M.A. toward the salary of Dr. Max Desmarais during the recent Morocco relief project.

(g) A letter from the Editor of the *Canadian Podiatry Journal* requesting an editorial for that journal from the General Secretary expressing the support and approval of the C.M.A. for the work of the Canadian Association of Podiatrists. The General Secretary was instructed to reply that he was unable to comply with this request.

2. *Referred:*

(a) To the Committees on Public Health and Pharmacy, the invitation from the Canadian Public Health Association to appoint, with that body, a joint committee to study the problem of self-medication with proprietary and patent medicines and its effects on the health of the people of Canada.

(b) To the Editor, for consideration of publication in the *C.M.A. Journal*, reports from Drs. R. B. Salter and Glen G. Smith concerning their respective teaching missions to Africa and India which were financed by the Canadian Supporting Committee to the World Medical Association.

(c) To the Committee on the Medical Aspects of Traffic Accidents, the matter of policy to be adopted by the C.M.A. regarding the advocacy of stricter legislation and penalties for driving while under the influence of alcohol, and for the adoption by the courts of scientific methods for determining guilt.

3. Discussed the proposals in a letter from Dr. Bernard R. Raginsky of Montreal, President of the International Society for Clinical and Experimental Hypnosis, who offered to conduct and report upon a study for the Association of the use and abuse of hypnosis as it applies to clinical medicine in Canada. Dr. E. V. Crutchlow was directed to ascertain further information on this matter and if this information was acceptable, the General Secretary was instructed to authorize Dr. Raginsky to conduct such a study for the C.M.A.

4. Authorized provision in the budget for a meeting in Toronto during the current year of the Committee on Rehabilitation, including all of its corresponding members.

5. Directed the General Secretary to inform the Section of Salaried Physicians that the C.M.A. could not implement their request for representation on General Council without changing the Association's by-laws, a procedure which was not contemplated at the present time.

6. Accepted the following terms of reference for the new C.M.A. Committee on Child Welfare, as recommended by Dr. L. C. Grisdale:

"This Committee shall study and report on pertinent matters relative to the health of infants and children from birth to adolescence and to the reduction of morbidity and mortality in this age group. The Committee may make recommendations for the improvement of facilities to this end and for the education of the profession in this field."

7. Received notification that the Canadian Neurological Association had undergone a change of organization. The psychiatrists have severed their connection with the Association, which now exists as the Association of Neurosurgeons and Neurologists. The two distinct organizations have inquired whether they should apply for affiliation with the C.M.A. and for representation on General Council by two representatives in place of the single delegate to Council assigned to the now defunct Canadian Neurological Society. This matter was referred to Dr. P. O. Lehmann for further study, to be reported on at the next Executive Committee meeting.

8. Appointed Drs. A. F. W. Peart and G. W. Halpenny as delegates to the 1962 meeting of the College of General Practice, reservations to be made at C.M.A. expense for these delegates and their wives.

9. Voted to hold the next meeting of the Executive Committee on February 24 and 25, 1961.

10. Adjourned on motion at 5.10 p.m. on October 29, 1960.

GENERAL PRACTICE

GENERAL PRACTICE RESIDENCIES IN CANADA

THE COLLEGE OF GENERAL PRACTICE of Canada in co-operation with the Canadian Medical Association has drawn up regulations governing a second-year or senior internship designed specifically for doctors planning to enter general practice. These are called General Practice Residencies. The following hospitals have co-operated with the College by establishing these Residencies:

British Columbia

Royal Columbian Hospital, New Westminster; Mr. L. F. C. Kirby, Superintendent.
Royal Jubilee Hospital, Victoria; Dr. J. L. Murray Anderson, Medical Administrator.
St. Joseph's Hospital, Victoria; Dr. E. N. Boettcher, Medical Superintendent.
Vancouver General Hospital, Vancouver; Dr. L. E. Ranta, Assistant Medical Director.

Alberta

Holy Cross Hospital, Calgary; Sister C. Gauthier, Superior and Administrator.
Calgary General Hospital, Calgary; Dr. J. C. Johnston, Administrator.
Misericordia Hospital, 9830-111th Street, Edmonton; Dr. A. J. Brunet, Medical Director.
Royal Alexandra Hospital, Edmonton; Dr. D. R. Easton, Superintendent.

Saskatchewan

Regina General Hospital, Regina; Dr. A. Pickles, Medical Superintendent.
St. Paul's Hospital, Saskatoon; Sister A. Lachance, Administrator.

Manitoba

St. Boniface Hospital, St. Boniface; Dr. Paul L'Heureux, Medical Director.
Misericordia General Hospital, Winnipeg; Dr. Jack McKenty, Secretary of Executive Staff.
Victoria Hospital, Winnipeg; Mr. G. B. Rosenfeld, Administrator.

Ontario

Belleville General Hospital, Belleville; Mr. Kenneth E. Box, Administrator.
Hôtel-Dieu Hospital, Cornwall; Sister St. M. Magdalen, Administrator.
Hamilton General Hospital, Hamilton; Dr. W. E. Noonan, Acting Superintendent.
Hôpital St. Louis-Marie de Montfort, Ottawa; Dr. W. F. Cormier, Medical Director.
Ottawa Civic Hospital, Ottawa; Dr. H. Featherston, Assistant Superintendent.
Ottawa General Hospital, Bruyère Street, Ottawa; Dr. J. Paul Laplante, Medical Director.
The General Hospital of Port Arthur, Port Arthur; Mr. J. A. McNab, Administrator.
St. Joseph's Hospital, Sarnia; Sister M. St. Paul, Superintendent.
St. Thomas-Elgin General Hospital, St. Thomas; Mr. Bertram G. Thacker, Administrator.
New Mount Sinai Hospital, 550 University Avenue, Toronto; Mr. Sydney Liswood, Administrator.
Northwestern General Hospital, Keele Street, Toronto; Dr. V. C. Malowney.
St. Joseph's Hospital, Toronto; Sister M. Estelle, Superintendent.
Toronto East General and Orthopaedic Hospital, Coxwell at Sammon Aves., Toronto; Mr. E. R. Willcocks, Superintendent.
Hôtel-Dieu of St. Joseph, 1030 Ouellette Ave., Windsor; Sister R. M. Prieur, R.N., Assistant Administrator.

Quebec

Montreal General Hospital, Montreal; Dr. William Storrar, Medical Director.
Notre-Dame Hospital, Montreal 24; Dr. J.-R. Boutin, Medical Director.
Royal Victoria Hospital, Montreal 2; Dr. Ronald V. Christie, Physician-in-Chief.
Jeffery Hale's Hospital, 1250 Ste. Foy Road, Quebec; Mr. K. E. Nicholson, Administrator.
L'Hôtel-Dieu de Québec, Quebec; Dr. J.-B. Jobin, Medical Director.
Sherbrooke Hospital, Sherbrooke; Mr. H. C. Allnutt, Administrator.
Hôpital St-Joseph, 779 Ste-Julie, Trois-Rivières; Dr. J.-J. Laurier, Medical Director.

New Brunswick

Saint John General Hospital, Saint John; Dr. Carl R. Trask, Director.

Nova Scotia

Aberdeen Hospital Commission, New Glasgow; Dr. H. C. McKay, Medical Superintendent.

PUBLIC HEALTH

SURVEILLANCE REPORTS OF EPIDEMIC OR UNUSUAL COMMUNICABLE DISEASES

Paralytic Poliomyelitis

Canada

For the week ending October 15, 1960, a total of 19 paralytic poliomyelitis cases was reported to the Epidemiology Division, a sharp decrease from the 42 cases reported in the week ended October 8.

During the last two weeks Quebec, Alberta and New Brunswick have accounted for most of the cases reported, and all three provinces showed a decrease in the 41st week.

The cumulative total for 1960 now stands at 647 paralytic poliomyelitis cases.

Paralytic Poliomyelitis Cases
Age Distribution and Vaccination Status
(Preliminary Reports to October 15, 1960)

Age group	*Vaccination status.* 0	1	2	3+	N/K	*Total*	*Per cent cases*
0 - 4	110	23	15	36	14	198	36.5
5 - 9	59	4	13	52	20	148	27.3
10 - 19	37	3	2	27	10	79	14.6
20+	88	6	9	12	3	118	21.7
Total	294	36	39	127	47	543	100.0
Per cent doses	59.3	7.3	7.9	25.6	—	100.0	—

To date, preliminary individual case reports have been received by the Epidemiology Division for 543 paralytic poliomyelitis cases (83.9% of the 647 cases reported to October 15), and 45 deaths (77.8% of the 58 deaths reported to October 15, 1960).

Paralytic Poliomyelitis Deaths
Age Distribution and Vaccination Status
(Preliminary Reports to October 15, 1960)

Age group	*Vaccination Status* 0	1	2	3+	N/K	*Total*
0 - 4	10	—	1	4	—	15
5 - 9	2	—	—	3	1	6
10 - 19	7	—	1	—	1	9
20+	14	—	—	1	—	15
Total	33	—	2	8	2	45
Per cent doses	76.7	—	4.7	18.6	—	100.0

Upper Respiratory Infections

About 20 cases of an influenza-like disease have been reported among school children at hostels in Inuvik, N.W.T. (hostels).

Respiratory infections have been on the increase since mid-August in the province of Manitoba, affecting all age groups, some persons quite severely. Nine of the adenovirus infections were identified serologically. No influenza virus has been isolated.

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PARALYTIC POLIOMYELITIS IN CANADA*
41ST WEEK—ENDING OCTOBER 15, 1960

	Reported cases									*Deaths*		
	This week			*Last week*			*To this date*			*To this date*		
	1960	*1959*	*1958*	*1960*	*1959*	*1958*	*1960*	*1959*	*1958*	*1960*	*1959*	*1958*
Canada	19	71	16	42	67	14	647	1593	203	58	151	19
Newfoundland	1	4	—	—	3	—	42	131	4	3	10	—
Prince Edward Island	—	2	—	—	—	—	1	6	—	—	1	—
Nova Scotia	—	—	—	—	—	—	9	6	—	1	—	—
New Brunswick	5	1	1	7	3	—	47	41	2	2	5	1
Quebec	4	34	7	20	32	6	169	1032	60	24	92	1
Ontario	1	9	1	1	18	4	25	183	17	1	17	5
Manitoba	—	1	6	1	—	3	9	26	89	1	2	9
Saskatchewan	—	1	—	3	3	—	44	37	1	7	3	—
Alberta	4	4	1	9	3	—	147	46	20	8	7	1
British Columbia	4	15	—	1	5	—	153	74	9	11	10	2
Yukon	—	—	—	—	—	—	—	—	—	—	—	—
Northwest Territories	—	—	—	—	—	1	1	11	1	—	4	—

*Weekly returns based on telegraphic reports by provinces.

TRICHINOSIS

Five more cases of trichinosis have been reported in the province of Quebec for the weeks ended October 1 and October 8. This brings the total for the year to 66.

MALARIA

A case of quartan malaria has been reported from Williams Lake, B.C., in an East Indian male, aged 32 years, who has been in Canada for eight months. The diagnosis has been confirmed by blood films. The patient responded to chloroquine.

BORNHOLM DISEASE

An outbreak of epidemic pleurodynia has been reported from Rimbey, Alta., a town with a population of 1000, about 90 miles southwest of Edmonton. About 12 persons were affected, with complaints of muscle pain and chest pains on breathing. The majority of the patients improved quickly, but tended to relapse after a few days.

Epidemiology Division, Department of
National Health and Welfare.

Ottawa, October 22, 1960.

OBITUARIES

DR. JOHN MANN, aged 59, died November 3 in Detroit where he had gone to make an address. He was a well-known obstetrician and gynecologist in Toronto and had been on the staff of Toronto General Hospital for 30 years.

Born in Scotland, he came to Canada as a boy and graduated from Queen's University in 1927. He gained renown for his development of a resuscitator for infants and for his invention of the "Mann" forceps.

Dr. Mann is survived by his widow, the former Dr. Miriam Alice Brick.

DR. JOHN MANN

AN APPRECIATION

Dr. John Mann died suddenly at Detroit, Michigan, on November 3, 1960. It is difficult to believe that this forceful and energetic personality is no longer with us. It was characteristic of him that, although in failing health, he had taken the time and effort to appear as guest speaker at the Detroit Academy of Medicine. Perhaps it is just as well that his remaining time was not one of restraint. He was too intellectually and physically active to endure placidly the limitations of chronic ill health. As he himself recently said, "There is little time left and so much work to be done."

I had initially met John Mann when I was an undergraduate student some sixteen years ago. This was the experience for many of us in the medical profession. He was an enduring friend of the student, and over the years the debt we owe him for the hours of instruction he gave us is heavy indeed. No hour was too late and no group too small to prevent him from sharing his knowledge on the subjects that he knew best. And when the hour grew later still and professional instruction had become thinly repetitious, he was still a most engaging conversationalist upon a wide variety of topics.

Many of my own generation feel that with John Mann's passing, the last of an inspiring group of clinical teachers has departed. These were men somewhat eccentric in personality, strong in their convictions, dramatic in their methods and forceful in their presentations. What they taught you, you never forgot. Their teaching was too alive and vital, too entertaining, and too fundamentally important to forget! The pattern from which these men were made today seems lost, and the hardy material of their constitution appears to be replaced by something more synthetic and contemporary with our age.

It hardly need be stated that Dr. Mann's reputation, locally, nationally and internationally, was chiefly

related to his design of obstetric forceps. Perhaps it is too early to place his contribution in its proper perspective, but this may be done at some later date. One might, however, hazard an opinion that he has made the first major contribution in improvement in design and the use of obstetric forceps since the principle of rotation was recognized. Be that as it may, his genius has left us his obstetric forceps and his infant resuscitator. By good fortune, his early youth was spent in Sault Ste. Marie, and this allowed him to develop the skills of a craftsman through apprenticeship training in machine work, design, and tool-making. When he set himself the problem of improving obstetric forceps, not only was he able to design them but his early models were forged by hand. In his design of mechanical equipment, he persistently emphasized the advantages of simplicity and maximum utility.

Not only was he an inventive mechanical genius, but he was also well known for his ability as a speaker and lecturer. He could, when necessary, call upon a profound sense of humour, sometimes subtle and occasionally blunt. By combining this on occasion with a masterful use of English, he could keep an audience under his spell. I well recall on one occasion, much to my embarrassment, that in replying to a toast, he set so high a standard that the guest speaker, who was a lawyer of wide national reputation, appeared mediocre indeed. A good deal of his ability to hold an audience was found in his ingenuity as an illustrator. His wondrous demonstrations of the principle of axis traction in forceps would thrill both young and old alike. I was never sure that they proved the underlying principle, but to see small figures walking a tightrope or performing some other incredible feat was so inspiring that the critic was overwhelmed. His sense of humour was broad and not always too personally applied. When asked how he had come to Toronto after graduating from Queen's in 1927, he was accustomed to reply that obviously Toronto very badly needed a graduate from Queen's. The need must have been great because he remained in Toronto from the time of his appointment to the staff in obstetrics and gynecology at the Toronto General Hospital in 1930 until the time of his death thirty years later.

Like many of his fellow countrymen, he never forgot his heritage as a Scotsman. He took much satisfaction in seeing the notation that had been written in his school record at Coatbridge, Scotland, when he visited the school several years ago: "John Mann, age 10, gone to America". These cryptic words he regarded had been written with a finality that had consigned him to a fate as unfavourable as any Scot had ever met. In true Scottish tradition, he was a determined man. His was not a personality that allowed for compromise. A thing to him was right or wrong and he stood for the right as he knew it. Not only did he stand for it, but he was aggressive in its cause. In a man less friendly by nature than he, this might have contributed much in alienation. But in argument, even if you were in the wrong, he chose to overlook this on the grounds of friendship.

In the passing of John Mann, the world has lost an obstetric genius and a devoted doctor, and we who have known him share as well the loss of an inspiring teacher and a devoted friend. W.H.A.

DR. CLIFFORD VICTOR MULLIGAN, aged 68, died October 30 at his home in Toronto. Born and educated in Omemee, Dr. Mulligan graduated from the University of Toronto in 1920. He served with the Canadian Army during the First World War and was made a member of the Order of the British Empire. During World War II, Dr. Mulligan served as a lieutenant-colonel with the Toronto Scottish regiment. Since then he had practised in Toronto and at the time of his death he was medical director of the T. Eaton Life Assurance Co.

Surviving Dr. Mulligan are his widow and two daughters.

DR. JOHN DONALD NEVILLE, aged 75, of New Westminster, B.C., died in hospital on October 24. A graduate of Queen's University in 1910, he practised in Camrose, Alberta, and was a former president of the Alberta College of Physicians and Surgeons. He retired to New Westminster in 1951.

Surviving are his widow, a son and two daughters.

DR. WALTER FELIX TISDALE, 73, died on September 29. Born in Greenway, Manitoba, of U.E. Loyalist stock, he attended Maldur High School and graduated from Manitoba Medical College in 1917 with honours and the general proficiency medal. He served in France with the R.A.M.C. and was then seconded to a British Field Ambulance attached to the 30th American Army Division. At the end of the war he did postgraduate work, practised for two years at Russell, and worked for the Red Cross in the Northern Lake district. In 1925 he began practice in Winnipeg in the Riverview district, associating himself chiefly with Misericordia, Grace and Victoria hospitals, of which latter he was chief of staff. He became secretary, then president of the Winnipeg Medical Society in 1945 and set in motion the Winnipeg Medical Society Benevolent Fund. The title of his presidential address before this Society was "Nature, That Dear Old Nurse". In words that were the true stuff of poetry he spoke of the beauty of nature which has been an uplift and inspiration to man. He was interested in the conservation of wild life and this interest found practical expression when he became director and president of Ducks Unlimited (Canada), Manitoba Game and Fish Association and president of Manitoba Museum Association. Of special interest to him were the great whooping cranes, now almost extinct, and more than once he visited the sanctuary established for them in Texas. Though not a hunter, he was the 1931 Manitoba champion in trapshooting.

In 1953-54 he was President of the Manitoba Medical Association and later was chairman of the board of Manitoba Medical Service, sponsored by that association.

He and his charming wife delighted to extend hospitality. She survives him, as do two brothers, Dr. John E. Tisdale and Charles Tisdale, and two sisters. He was a man of many parts, of warm generous disposition and alive to beauty in all its forms. R.M.

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BOOK REVIEWS

PHYSIOLOGY OF PREGNANCY, edited by E. W. Page; and ENDOMETRIOSIS, edited by C. S. Stevenson. Clinical Obstetrics and Gynecology, Vol. 3, No. 2. 536 pp. Illust. Paul B. Hoeber, Inc., New York, 1960. A quarterly publication. $18.00 per year.

This volume constitutes another well-produced addition to this quarterly series. Dr. Page, as is to be expected of such an authority, has edited a first-class section on the physiology of pregnancy which will be welcomed by senior students, teachers and practising obstetricians alike. We have not, recently, read any better coverage of this constantly changing subject, for Dr. Page's section is both concise and a very adequate summary of "the latest" in the physiological aspects of pregnancy. We would advise any interested postgraduate students and all candidates for the higher examinations in obstetrics to study this symposium in its entirety.

Sections on renal function, circulation and respiration are particularly well covered.

The second (and smaller) section on Endometriosis is, understandably, not so concise or authoritative, and the many individual opinions and observations lead to considerable overlapping of subject matter by the authors concerned. Outstanding chapters in this section are those on pathology (by Edmund Novak) and a chapter containing some fine detail of conservative surgical techniques described by Laman Gray. Novak's concluding paragraph should be memorized by all pathologists and by all hospital Tissue Committee members. It is worth quoting in part: "Always bear in mind the number of cases of unquestioned gross endometriosis seen in the operating room, in which the removed tissues show no histological evidence of endometriosis in the microscopic sections. Such instances should be recognized by all pathologists and Tissue Committees so that the operating surgeon will not be penalized for excising, as he should, all grossly visible endometriosis lesions from the ovaries, pelvic peritoneum and bowel."

ANATOMY AND PHYSIOLOGY FOR RADIOGRAPHERS. J. E. Blewett and A. M. Rackow. 322 pp. Illust. Butterworth & Co. (Publishers) Ltd., London; Butterworth & Co. (Canada) Ltd., Toronto, 1960. $7.50.

This book was written, to quote from the preface by the authors, "to select and simplify those parts of many medical subjects which will enable a radiographer to make a precise pursuit of her craft". Its scope is, again quoting from the preface, "a compilation based closely on the anatomy and physiology curriculum recently accepted by our Society" (the Society of Radiographers).

The first three very short chapters are devoted to the simpler fundamentals of cell structure, bacteriology, and pathology (inflammation and tumours). The remainder and bulk of the book is devoted to a description of systematic anatomy with a separate chapter for each system. The authors include at the end of most chapters a short résumé of applied anatomy (with respect to radiological examination), and a sketchy outline of physiology.

This text was designed to be studied with a "half skeleton, a set of normal x-ray films, and a living subject on whom to study surface structures".

There are 133 figures (line drawings—mostly black and white) and 22 plates (radiographs with descriptive line drawings). The line drawings are of good quality but too few in number. The 22 plates which appear at the end of the book should have been integrated with the text. Although it is realized that the reproduction of more radiographs would have increased the cost of this book, it is felt that, as this is a textbook for radiographers, the accent should have been on radiographic anatomy and that there should have been many more plates of the type included here.

The quality of the text is uneven, with varying degrees in the clarity of the descriptions. The most complete and clear descriptions are not always of the most important structures. It is felt that a greater concentration on surface anatomy would have made this book more useful as a radiographic text.

After reading this book one is left with the feeling that although the student may learn by rote a sufficient amount of anatomy and physiology to pass the examinations of the Society of Radiographers, she will be left with an incomplete understanding of the simple fundamentals of these two subjects.

SURGICAL ERRORS AND SAFEGUARDS. Max Thorek. 652 pp. Illust. 5th ed. J. B. Lippincott Company, Philadelphia and Montreal, 1960.

This book has as its objective an elucidation of surgical errors and their prevention, but it falls short of this by a considerable measure. That is not to say that there are not many worthy points made, but rather that too many important points are omitted, and too much space is given to questionable procedures.

In a 1960 publication one would expect that in a section on anesthesia reference would be made to the dangers of putting neomycin into the peritoneal cavity when the patient is being given muscle relaxants. In discussing blood transfusions, if the authors are to include syphilis, as they have, among the dangers of transmissible disease, then they should also include malaria, which can be even more discomfiting to the patient and the surgeon and which is difficult to detect in donor blood.

The section on varicose veins deserves special attention. The use of sodium morrhuate is advocated for vein injection. This seems to be appalling advice in the face of many instances of anaphylactic shock that have resulted from the use of this agent. There are several agents safer than and just as effective as sclerosants. The young surgeon wondering why he has not had better results in the treatment of stasis ulceration by ligation and stripping of the saphenous veins will not find the answer here. There is no mention of the role of incompetent communicator veins in stasis ulceration. A work orientated as this one is might also point out that accidents have happened to the femoral artery and even the lateral popliteal nerve in the course of surgical treatment of varicose veins. Our lawyers are certainly aware of these surgical errors. Perhaps these faults in the text are a natural sequel of classifying varicose veins as a disability in the field of orthopedic surgery.

The authors of the section on cardiovascular surgery are certainly not wholly to blame for such a conspicuous error in the proof reading of page 309. Here a large

(Continued on page 1288)

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SEARLE

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plate on aortic commissurotomy is entitled mitral commissurotomy both above and below the figures.

The young gastrointestinal surgeon critical of himself when one of his post-gastrectomy patients develops a duodenal fistula will find no mention here of how this might have been prevented or how it should be treated, but should he wish to do a gastrostomy on a patient with carcinoma of the stomach or esophagus he will be rewarded with a sizable description of this procedure. If he turns to the section on biliary surgery to review the indications for exploration of the common bile duct when performing a cholecystectomy, he will find that the author advocates that the duct should be explored if there are stones in the gallbladder. This indication seems a little broad. In the same section, if he should look to see how he might have had less trouble than he did when the cystic artery got away from him during his last cholecystectomy, he would find that the author disposes of this problem by stating that it is "nearly impossible to find it again". Nor is there any mention in the section on biliary surgery of the special hazards presented by the jaundiced patient. The author might have mentioned that one way of avoiding trouble is to prepare the jaundiced patient adequately and to be especially scrupulous in avoiding any period of hypotension.

If it has been some time since a surgeon encountered a sliding hernia and if he refers to this text to see how he might deal with it skilfully, he will not be rewarded by any mention of the condition. However, if he cares to treat the next hernia he sees by the injection method, there is a detailed description of that procedure.

KLINIK UND THERAPIE DER NEBENWIRKUNGEN. Sulfonamide, Antibiotica, Tuberculostatica, Cytostatica. Anticoagulatien, Hormone, Vitamine. (Clinical Picture and Therapy of Side Effects of Sulfonamides, Antibiotics, Tuberculous Drugs, Antileukemics, Anticoagulants, Hormones and Vitamins.) H. P. Kuemerle and others. 1286 pp. Illust. Georg Thieme Verlag, Stuttgart, W. Germany; Intercontinental Medical Book Corporation, New York, 1960. $32.25.

This is a comprehensive coverage of the subject by many authors and done with great care. There are as many as 8614 references with complete titles. The book is divided into three parts. In the first part the pathology, clinical chemistry, pharmacology and toxicology of all drugs mentioned above are discussed. In the second part the clinical symptoms and signs are considered in relation to organ-systems. In the third part, side effects are discussed from the point of view of different specialties. The possible benefits and limits of therapy with these drugs are the most important topics of this part.

The authors have chosen as their maxim the Hippocratic "Primum non nocere". One must admit that they do their best to describe all the clinical uses of antibiotics and to point out the possible dangers.

This reviewer recommends the book highly to every physician and specialist who knows German and who makes use of the drugs discussed. The price is actually very moderate for such a large book.

It would be timely and desirable to translate the book into English, adding some antibiotics used especially frequently on this continent.

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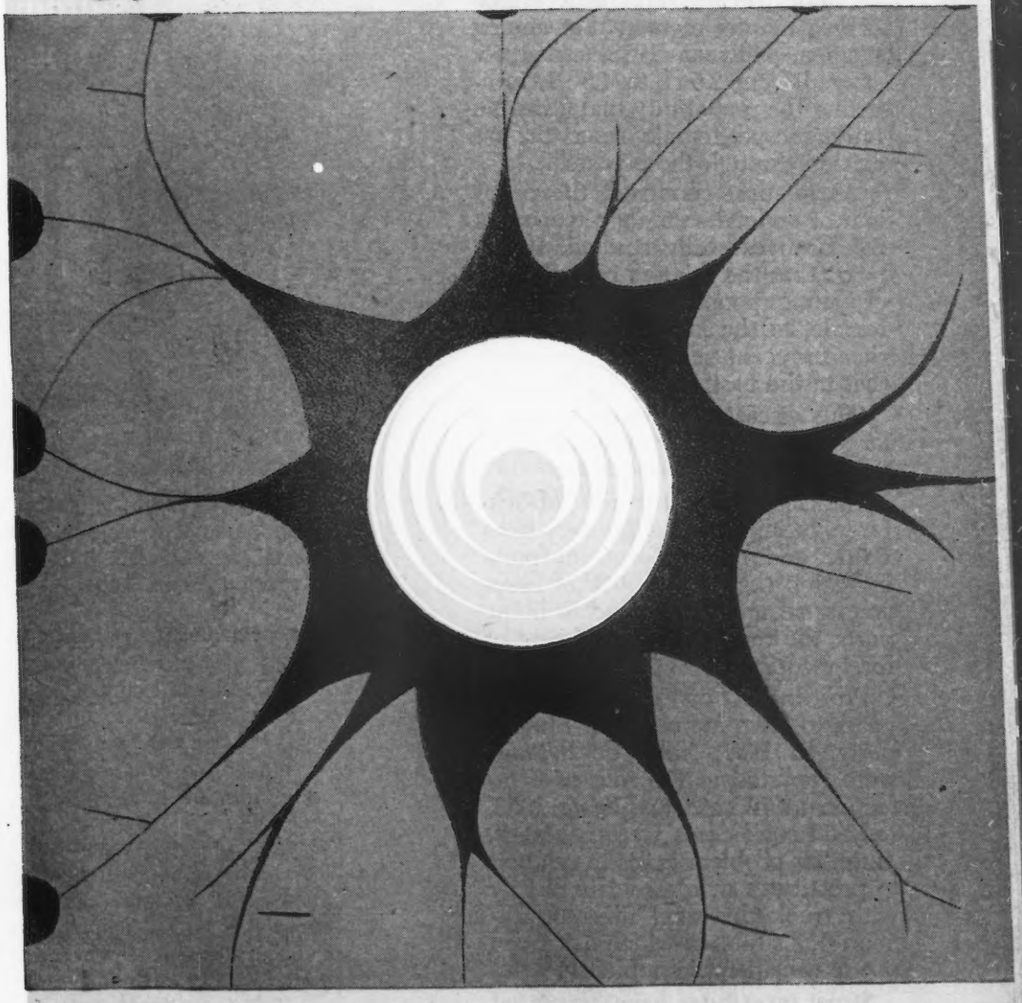

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eferences:
yd, F. J. Jr.: Bull. School Med. Univ. aryland *44*:29, 1959
ima, H., and Vispo, R. H.: A.M.A. Arch. eurol. & Psychiat. *81*:658, 1959
hmann, H. E.; Cahn, C. H., and de ereuil, R. L.: Canad. Psychiat. A. J. *3*:155, 58
ann, A. M., and MacPherson, A. S.: Canad. ychiat. A. J. *4*:38, 1959
ane, R. B.; Habib, A., and Batt, U. E.: nad. M.A.J. *80*:540, 1959
aker, M.: Canad. M.A.J. *80*:546, 1959
auss, H.: New York J. Med. *59*:2906, 1959

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MEDICAL NEWS *in brief*

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THE EPIDEMIOLOGY OF GONORRHEA IN FINLAND: 1953 TO 1958

While venereal disease notification is fairly efficient in Finland, the fact remains that reporting is, to a degree, incomplete, especially in respect of gonorrhea. Self-treatment, and treatment of doubtful cases without laboratory confirmation, are practised in some cases. The number of cases reported can therefore indicate a long-term trend only. Observations on certain epidemiological features of gonorrhea in Finland have been presented by Härö and Pätiälä in a recent report to the World Health Organization (WHO/VDT/262, September 29, 1960).

In contrast to syphilis, which has become rare in Finland and other Nordic countries in the last decade, the incidence of gonorrhea remained relatively high in the period under review. The ratio of gonorrhea among men to that among women, between 1938 and 1958, ranged from 2.5 :1 to 4.5 : 1, indicating the probability that a sizable undiagnosed female reservoir has existed through these years.

As in most countries, the problem of gonorrhea among teenagers has been carefully studied. It appears that the relative contribution of young people, both male and female, to the incidence of gonorrhea in recent years did not exceed that in the past.

This disease was concentrated in larger urban communities and was relatively rare in rural areas.

Information on the role of seafarers in importing gonorrhea from Baltic and other European ports indicated that about 50% of cases among seamen originated in home ports, the remaining cases being of foreign origin.

Prostitution on shipboard appears to have increased in Finnish ports. In 1957, "filles de bateau" were reported as the source of infection in 72 cases, while in 1953, only 33 such cases were reported. A similar problem exists in relation to prostitutes who associate chiefly with truck drivers ("filles de camion"), a situation which has given rise to considerable publicity.

Street prostitutes have decreased in number while restaurants and dance halls are becoming more important as meeting places for casual liaisons resulting in infection. It is of interest that the number of these casual liaisons commenced on the street does not decrease with age, nor does it differ in frequency between married and unmarried men.

The contacts made in the cheapest restaurants, and particularly those licensed to sell liquor, resulted in the largest number of cases. Those selling beer and wine only, and those not licensed to sell alcoholic beverages, do not seem to have played an important part.

A study of the time of year and periods when infections were contracted showed that the incidence was highest during holidays and on weekends.

The incubation period between the time of infection and the time when the patient consulted a doctor showed no change despite the widespread use of penicillin; nor did the nature, course or response of the disease to penicillin.

While practically all men present themselves voluntarily for treatment, this holds true for only 40 to 50% of women, the remaining female cases being referred to doctors by the authorities.

It was concluded that the epidemiology of gonorrhea did not change substantially between 1953 and 1958. Though the incidence of the disease in the youngest age group increased somewhat, it did not, in general, exceed previous levels. It does not apparently present a problem in young people in Finland, in contrast to the situation in other countries such as the United States, Britain and Sweden. The increased proportion of cases among married people is of some concern. Health education, with emphasis on the importance of normal family life, should be intensified.

These epidemiological observations suggest the possibility of influencing the situation in restaurants, dance halls and on the streets by promoting educational and leisure activities, and by intensifying surveillance of undesirable places by more thorough contact tracing. Factors such as the slackening of marriage bonds, frequentation of undesirable restaurants and the abuse of alcohol, as well as special conditions under which certain population groups such as seamen, live, should all be given attention in the fight against gonorrhea.

DEMOGRAPHIC ASPECTS OF MULTIPLE SCLEROSIS

Some intriguing observations on certain epidemiological features of multiple sclerosis are described in a report published in the July 1960 issue of the *American Journal of Hygiene* by E. D. Acheson and C. A. Bachrach of the Division of Geographic Epidemiology, Veterans Administration, Washington. Based on a study of the medical records of 1782 American veterans with multiple sclerosis, these authors observed that this disease became progressively more prevalent from south to north within the United States, at all longitudes. This gradual progression in frequency of the disease applied equally to Negro and white patients. Such differences in geographic patterns were not considered solely attributable to differences in diagnostic facilities in different areas of the country. More multiple sclerosis patients were born in Canada, and fewer were born in Caribbean countries, than had been anticipated. The number of Negro patients born in northern areas was striking. In this survey there was no evidence of clustering of cases in particular cities or states. The data available provided no indication to suggest that multiple sclerosis is caused by infection or by the presence or absence of any known trace elements in soil or water. The authors consider that the results of their study suggest the possibility that both Negro and white races are exposed to some deleterious environmental factor or factors in gradually increasing intensity from south to north, or that some protective factor is absent from the environment in the north but present in increasing degree in southern latitudes. Further carefully controlled and

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assessed demographic studies of this type appear to be indicated.

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NEW TECHNIQUES IN OCULAR PHOTOGRAPHY

An electronic flash system that provides light for photographing the human retina, with sufficient rapidity to produce a minimum of discomfort to the patient, has been developed by Leonard M. Hart, a medical illustrator of the U.S. Veterans Administration. The lighting system required can be used on a standard retinal camera.

Although photographs of the inside of the eyeball had been possible previously, the process involved use of a carbon arc light directed into the eye, both for focusing and for taking the picture. Since this caused considerable discomfort, many patients refused to co-operate in studies involving this technique. The electronic flash is used for only one-thousandth of a second, and focusing is accomplished by use of a milder repetitive flashing light. This method gives a much better picture.

Such photographs are useful in studies of the retinal vasculature, as an aid to diagnosis and research on cerebral vascular abnormalities. Work is currently in progress on new photographic techniques for taking fluorescent motion pictures of the interior of the eye.

This new electronic flash system was described at a recent meeting of the Biological Photographic Association, in Salt Lake City.

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MEASLES VACCINE

Effectiveness of the anti-measles vaccine developed by Dr. John F. Enders, Harvard Medical School, will be tested in a Staten Island children's institution and a Nigeria, Africa, hospital. New York University Medical Center scientists will administer the vaccine to about 1500 newly admitted children at the Staten Island school and to about 4000 children in Nigeria. An earlier test this year showed that none of 23 children given the vaccine contracted measles during an epidemic, while 17 of 23 children not receiving the vaccine had the disease. — *A.M.A. News,* October 31, 1960.

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CONFUSION IN THE ELDERLY

Once old people have to stay in bed, the rapid development of loaded bowel and bladder, incontinence, dehydration, bed sores, and terminal bronchopneumonia or urinary infection must be anticipated. Perhaps the most important single factor in the care of the elderly sick is to keep them out of bed in a comfortable chair for at least a few hours every day.

Nobbs (*Lancet,* 2: 888, 1960) has drawn attention to some common reasons for reversible mental confusion in elderly patients. Loaded bowel is commonly found when elderly patients are admitted solely because of mental confusion. Relief of the constipation restores their mental equilibrium. Digital examination of the rectum will usu-

ally, though not always, make the situation clear, and it is then simple enough – with enemas, olive oil, suppositories, and gentle laxatives such as bisacodyl—to relieve the constipation.

Even a slight degree of anemia can by itself cause severe mental confusion, often maniacal in character. An increase in the hypoxic state of the cerebral cortex, which is already arteriosclerotic, tips the balance of sanity. Restoration of the hemoglobin level is not always simple, requiring careful investigation into the cause of the anemia.

Dehydration, which occurs readily in old people, can be the sole cause of confusion. Renal function in the elderly is below par and a fixed urinary specific gravity of around 1.010 is common. Thus, to excrete urea and other waste products, more water and salt must be lost. Unless intake is adequate, salt, as well as water, depletion follows and the patient does not then feel thirsty. Dehydration develops and eventually uremia supervenes. Such a patient, given salt by mouth, can regain the desire to drink within less than an hour, and this can be life-saving, provided that copious fluids are then given.

Bronchopneumonia may cause delirium in patients of all ages, but in the elderly there may be no fever or dyspnea to attract attention to the lungs, the only sign being the onset of confusion. The response to antibiotics is often dramatic.

Other common causes of confusion in elderly people include cerebral disease, heart failure, pulmonary disease and uremia.

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TREATMENT OF OBESITY BY HIGH-FAT DIET

In the last few years, many have found that diets restricted in carbohydrate only, and not in fat, give satisfactory weight reduction without hunger. Since these diets allow unlimited protein and fat, they are sometimes referred to as high-fat diets rather than low-carbohydrate diets. Understandably, the phrase "high-fat" in relation to weight reduction is sufficiently startling to make a deep impression on the public.

Yudkin and Carey (*Lancet*, 2: 939, 1960) have made a study of the intake of calories, protein, fat and carbohydrate of six obese subjects before and during the consumption of a high-fat diet. For this diet, the patients were instructed to limit only carbohydrate, and to consume as much fat and protein as they wished. All subjects lost weight during the two weeks on the diet. But their daily intake of calories was found to be from 200 to 1900 lower, a reduction of between 13% and 55%. No subject consumed significantly more fat than before, and three subjects consumed significantly less. Thus, the term high-fat diet is wrong; it should be low carbohydrate. The obese patient loses weight on this diet not because of some peculiar metabolism of fat but because of a reduction in caloric intake.

These results raise a problem in relation to control of appetite. Current theories assume that appetite is controlled chiefly, if not entirely, by calories; explicitly or implicitly they give equal values to calories

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Effective penicillin therapy with just one tablet every 12 hours

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NEW LOW PRICES

"FALAPEN"™

FAst and Long-Acting PENicillin

500,000 units potassium penicillin-G per tablet

avoids need to waken patients... yet is inexpensive

With "Falapen", it is unnecessary to administer penicillin every six to eight hours for full effectiveness. Studies have shown that one "Falapen" tablet every 12 hours has controlled scarlet fever, otitis media, pharyngitis and pneumococcal and gonococcal infections.

"FALAPEN" is relatively safe; when compared with parenteral administration of penicillin, oral administration is associated with much lower incidence of severe sensitivity reactions.

DOSAGE: Adults: One tablet every 12 hours. This may be increased for very severe infections.
Bottles of 10 tablets.

FAST—Blood levels are rapidly established by immediate release of part of the penicillin in the stomach.

Newly-developed "Polymer 37"* coating resists stomach acid action but dissolves immediately in the intestine, exposing the penicillin core.

LONG-ACTING—Levels are maintained by slow release in the intestine of penicillin from the core.

*Pat. 1959

CAUTION: In rare instances, the injection of penicillin, and more rarely still its oral administration, may cause acute anaphylaxis. The reaction appears to occur more frequently in patients with bronchial asthma and other allergies, or in those who have previously demonstrated sensitivity to penicillin.

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MEDICAL NEWS *in brief*

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from protein, fat and carbohydrate. Yet, a change to a low-carbohydrate diet may, in the obese, reduce calories to half or less, but may not lead to hunger. Further, this diet is not high in fat. It would seem from this that carbohydrate does not satisfy the appetite; it may even increase it, because more dietary carbohydrate may lead to a greater dietary intake of fat. This conclusion is supported by the observation that the addition of glucose to a reducing diet led to a decreased loss of weight; this could not be accounted for by the calories from the glucose and suggests that the glucose stimulated the appetite. It is not clear whether these conclusions apply only to obese persons. If they do, it is possible to imagine that this signifies a major qualitative difference between the obese and the non-obese. The obese may be those in whom carbohydrate does not easily satisfy the appetite. On the other hand, if this property of carbohydrate is common to all people, though perhaps in varying degrees, it should be possible to make thin people put on weight by increasing dietary carbohydrate. Ordinary dietary recommendations, which usually involve an increase in foods such as butter and cream, are often notoriously ineffective in increasing the weight of thin people.

These questions will have to be answered by further investigation.

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MENTAL HEALTH DIVISION CHIEF APPOINTED

Dr. Morgan Martin has recently been appointed Chief of the Mental Health Division, Department of National Health and Welfare. This was announced by the Minister of National Health and Welfare, the Hon. J. Waldo Monteith, and Dr. Martin took over the post last September 30.

Dr. Martin has spent a good deal of his professional life in Western Canada and during the past year has been studying administration and community psychiatry at Columbia University, New York. Graduating from the medical school at Queen's University, he went directly into the Royal Canadian Army Medical Corps and served from 1943 to 1946. He went west in 1947 and held various appointments in Saskatchewan mental hospitals. In 1951 he became director of a mental health clinic in Regina and subsequently was appointed director of the Regina General Hospital's psychiatric ward.

While in Regina Dr. Martin was visiting consultant in psychiatry to a variety of centres. He lectured to nurses, medical students and general practitioners, and also to the clergy and other community groups. His special interest in work with groups led him to various staff positions on group development institutes, including the National Training Laboratory in Bethel, Maine. For a number of years Dr. Martin organized the annual conferences of the psychiatric branch of the Saskatchewan Department of Public Health. He became the first president of the Saskatchewan Psychiatric Association.

During the past summer Dr. Martin has been associated with the Research Division of Central Islip State Hospital in New York in a program designed to reduce the length of stay in the psychiatric wards.—*Canada's Mental Health*, November 1960.

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THE TORALD SOLLMANN AWARD IN PHARMACOLOGY

Wyeth Laboratories of Philadelphia has established the Torald Sollman Award in Pharmacology to commemorate the pioneer work in America of Dr. Torald Sollmann in the fields of pharmacological investigation and education.

The Torald Sollman Award of $2500 and an appropriate medal will be awarded for significant contemporary contribution to the advancement and extension of knowledge in the field of pharmacology. The recipient of the Award will be determined by a Torald Sollmann Award Committee. The members of the Council of the American Society for Pharmacology and Experimental Therapeutics will constitute the Torald Sollmann Award Committee, the senior Councillor to be the Chairman of the Committee. The following rules apply:

1. All scientists working in the field of pharmacology including,

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but not limited to, individuals from academic institutions, foundations, governmental and industrial and research organizations, regardless of age, sex or nationality, are eligible for the Award.

2. The decision of the Torald Sollmann Award Committee will be based upon originality and uniqueness of approach as well as development of the new concepts, theories and techniques which constitute a definite, mature and significant contribution to the extension and advancement of contemporary pharmacological knowledge.

3. The decision of the Torald Sollmann Award Committee as to the recipient of the Award will be final. Not more than one Award will be made annually, but there will be no obligation or duty to make an Award when, in the sole opinion of the Committee, there is no qualified recipient.

4. Nominations for the Award may be made by any member of the Society, but no member may nominate more than one candidate. Nominations may also be accepted by the Committee from members of other scientific associations both domestic and foreign. Nominations, manuscripts or reprints of publications of the candidate covering the work for which the nomination is made, and a brief biographical sketch of the candidate must be submitted in triplicate to the Secretary of the Society to be forwarded to the Chairman of the Torald Sollmann Award Committee not later than January 15 of each year to be eligible for consideration for an Award during the ensuing year.

Presentation of the Award and medal will be made to the recipient at a meeting of the Society by the Chairman of the Torald Sollmann Award Committee. At the discretion of the president of the Society, the recipient is to deliver a Sollmann Oration covering his major contribution. Travelling expenses of the recipient to the meeting at which the Award is presented will be paid by Wyeth, and Wyeth will also assume the nominal expenses of the Award Committee in selecting the recipient of the Award. Initially, an Award at intervals of three years is contemplated. The first Torald Sollmann Award in Pharmacology will be given at the 1961 Fall Meeting of the Society in Rochester.

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EXAMINATIONS FOR CERTIFICATION IN CHILD PSYCHIATRY

The Committee on Certification in Child Psychiatry was established as a sub-board of the American Board of Psychiatry and Neurology, Inc., in February 1959. Since that time, a number of physicians have been certified on record in the sub-specialty of Child Psychiatry, and two examinations for such certification have been held, the latter on October 17 and 18, 1960. Canadian Diplomates who have qualified for certification in Child Psychiatry are Dr. W. L. Valens of Victoria, B.C. (October 1959) and Dr. H. Caplan of Montreal (October 1960).

The Committee on Child Psychiatry of the American Board of Psychiatry and Neurology, Inc., will conduct its next examination

on February 6 and 7, 1961 in Chicago, Illinois.

The Committee also wishes to announce that applications for certification on record will be received up to September 21, 1961. All applications received after that date will be considered for eligibility for examination only.

All inquiries may be directed to: Dr. David A. Boyd, Jr., Executive Secretary-Treasurer, American Board of Psychiatry and Neurology, Inc., 102-110 Second Avenue, S.W., Rochester, Minnesota.

Copies of the Board's booklet entitled "Information for Applicants for Certification in Child Psychiatry: Rules and Regulations" may be requested from the above address.

—

CONTRACEPTION AND THE LAW IN CONNECTICUT

The Supreme Court agreed to rule on a Connecticut law which makes it a crime for anyone to use contraceptives or for a physician to prescribe them.

The issue was brought to the Court by Dr. C. Lee Buxton, a gynecologist and professor of obstetrics at Yale University; and by a married couple and housewife, not identified.

Dr. Buxton said he wanted to advise the women about "medical instruments" to prevent conception, but was unable to do so because of an 1879 state statute. State courts upheld the law.

One of the two women involved had survived a pregnancy with serious emotional and physical impairments; the other wife had three children with congenital abnormalities.—*A.M.A. News*, October 31, 1960.

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MEDICO-SURGICAL CINEMA PRIZE AWARDED BY "LA PRESSE MEDICALE"

The "Annual Prize for Medico-Surgical Cinema", endowed with 1000 NF (approx. $196) cash (which can be divided if necessary) and various other awards, will be given during the last session of the Course of "Actualités Médico-Chirurgicals" at the "Nouvelle Faculté de Médecine de Paris" on March 14, 1961.

The jury will consider the didactic value of the film as well as its cinematographic quality. Only 16 mm. films will be accepted. The time of projection must not exceed 30 minutes.

Applications and films are to be sent to the "Secrétariat du Journal *La Presse Médicale*", 120 Boulevard Saint-Germain, Paris VI, before February 1, 1961.

Prizes will be awarded to the authors of the best films. All the films may be exhibited including those subsidized or produced by a laboratory or a firm.

1961 ANNUAL CANCER SYMPOSIUM, REGINA

The Saskatchewan Division of the Canadian Cancer Society is sponsoring the Sixth Annual Cancer Symposium which will be held in the Museum of Natural History, Regina, on May 29, 30 and 31, 1961. Topics to be discussed will include thyroid diseases, cancer of the head and neck, carcinoma of the stomach, and dyspepsia.

This symposium is approved by the College of Physicians and

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Surgeons of Saskatchewan and the College of General Practice (Medicine) of Canada.

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NOBEL PRIZE FOR MEDICINE

The current Nobel Prize for Medicine will be shared by Professor Peter Brian Medawar, Jodrell Professor of Zoology and Comparative Anatomy at the University College, London, and Sir Frank Macfarlane Burnet of Australia. As stated in the citation, the £14,000 prize was awarded to these two men in recognition of their contributions to the concept of acquired immunological tolerance.

Professor Peter Brian Medawar

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COURSES IN OPHTHALMOLOGY

The Institute of Ophthalmology of the Americas of the New York Eye and Ear Infirmary announces the following courses:

1. "Retinal Detachment Surgery" by Professor Ernst Custodis, Director, Eye Clinic, Academy of Medicine, Düsseldorf, Germany. A series of three lectures to be given March 27-29, 1961. Fee $30.00.

2. "Pleoptics" by Dr. Heinz Gortz, Dozent, Academy of Medicine, Düsseldorf, Germany. A series of two lectures to be given on March 30 and 31, 1961. Fee $20.00.

Application may be made to Mrs. Tamar Weber, Registrar, 218 Second Avenue, New York 3, N.Y.

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SYMPOSIUM ON THE CONTROL OF THE MIND

An unusual symposium, meeting in San Francisco on January 28, 29 and 30, 1961, will bring together some of the world's foremost medical scientists and men of letters for an interdisciplinary report on the "Control of the Mind". The meeting will be presented by the University of California Medical Center and University Extension, through the financial assistance of the Schering Foundation.

Factors involved in control of the mind will be explored from a wide variety of viewpoints: the physiological and biochemical, the psychologic, sociologic and historical, and from the point of view of religion, mass communication and political philosophy.

Among the participants will be writers Aldous Huxley and Arthur Koestler; H. Stuart Hughes, Harvard historian; Harold D. Lasswell, Yale law professor and noted political scientist; C. A. Mace, British psychologist; James Grier Miller, professor of psychiatry and director of the Mental Health Research Institute at the University of Michigan; Wilder Penfield, noted neurosurgeon and philosopher of Montreal; William E. Porter, professor of journalism at the State University of Iowa; Leo C. Rosten, author and visiting professor in government affairs, University of California, Berkeley; and Herbert A. Simon, assistant dean of the Graduate School of Industrial Administration at Carnegie Institute of Technology.

Other speakers are Jonathan O. Cole, chief of the psychopharmacology service centre, National Institute of Health; Very Reverend Martin C. D'Arcy, former master of Campion Hall, Oxford; William R. Dennes, professor of philosophy at the University of California; Donald O. Hebb, chairman of the department of psychology, McGill University, Montreal; Holgar Hydene, professor of histology, University of Göteborg, Sweden; Seymour S. Kety, scientific director, National Institute of Mental Health; David Krech, professor of

psychology at the University of California; Karl H. Pribram, associate professor of psychiatry and psychology, Stanford University; John B. deC. M. Saunders, provost of the University of California Medical Center; and Glenn T. Seaborg, chancellor of the University of California at Berkeley.

Further information and application for enrolment may be obtained from the Department of Continuing Education in Medicine, University of California Medical Center, San Francisco 22, California.

AMERICAN BOARD OF OBSTETRICS AND GYNECOLOGY

The Part 1 Examinations (Written) will be held in various cities of the United States, Canada, and military centres outside the Continental United States on Friday, January 13, 1961.

Reopened Candidates will be required to submit Case Reports for review 30 days after notification of eligibility.

Scheduled Part 1 Candidates are also required to submit their 20 Case Abstracts in order to complete the Part 1 Examination.

Current bulletins outlining present requirements may be obtained by writing to the Executive Secretary's office, Robert L. Faulkner, M.D., American Board of Obstetrics and Gynecology, 2105 Adelbert Road, Cleveland 6, Ohio.

THE NEW SECRETARY-GENERAL OF THE WORLD MEDICAL ASSOCIATION

Dr. Heinz Lord, a practising surgeon of Barnesville, Ohio, has been elected by the General Assembly to succeed Dr. Louis H. Bauer of New York City as Secretary General of the World Medical Association.

Dr. Lord, a Peruvian citizen by birth, although born in Germany where he received his preliminary education, will become Secretary General of the World Medical Association on January 1, 1961.

Dr. Lord is of German and Swiss descent. He was educated in Hamburg, Germany, and studied medicine in the Universities of Zurich, Berlin and Hamburg, graduating from Hamburg University in 1942. While working at a Hamburg hospital he was arrested for activity in a resistance movement and confined in a German concentration camp until the end of the war. After his liberation by the advancing British troops, he assisted in their search for allied prisoners.

In 1947 Dr. Lord resumed his medical career at the Hamburg-Barmbek General Hospital, where he was recognized as a surgical specialist in 1952 and a urological specialist in 1953. In 1954 he migrated to the United States, where he took three additional years of surgical training at the Bridgeport Hospital, Bridgeport, Connecticut. In 1957 he received his licence to practise medicine in the United States.

Dr. Lord has taken an active part in medical organizational work at the local and international levels since 1949. He is a Fellow of the International College of Surgeons; a member of the American Medical Association and a member of the Ohio State Medi-

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cal Society and his county society. From 1949 to 1953 he was Chairman of the Hamburg chapter of the Marburger Bund (German Employed Doctors' Federation). Under his chairmanship the economic and social conditions of the doctors employed by hospitals were greatly improved.

Dr. Lord is married and has two children.

The retiring Secretary General, Dr. Louis H. Bauer, was appointed to that position in 1948. On January 1, 1961, he will become Consultant to the World Medical Association.

EIGHTH INTERNATIONAL CONGRESS FOR MICROBIOLOGY

The Eighth International Congress for Microbiology will be held in Montreal, Quebec, from August 19 to 25, 1962, under the auspices of the Canadian Society of Microbiologists. Headquarters of the Congress will be at the new Queen Elizabeth Hotel.

There will be five Sections: Structure and Function; Agricultural Microbiology; Industrial Microbiology; Medical and Veterinary Microbiology; and Virology.

Two or more symposia are being planned for each Section. All speakers at the symposia will be especially invited. There will be sessions for contributed papers in all Sections.

Space is available for scientific exhibits; a demonstration session of methods and techniques may be held; and a commercial exhibit of apparatus, etc., is being planned.

Enquiries should be made to Dr N. E. Gibbons, VIII International Congress for Microbiology, National Research Council, Ottawa 2, Canada. Requests to be placed on the mailing list for the Second Circular should be made before January 31, 1961.

POSTGRADUATE COURSES, UNIVERSITY OF MICHIGAN MEDICAL CENTER

The annual, short postgraduate courses in Internal Medicine, Obstetrics and Gynecology, Ophthalmology, Otolaryngology, Pediatrics, and Radiology will be given from January to April 1961 at the University of Michigan Medical Center, Ann Arbor, Mich.

FAMILY EXPENDITURES FOR HEALTH CARE IN THE U.S.

A recent survey of 2941 families, representing a random cross-section of the United States, was conducted jointly by the Health Information Foundation, New York City, and the University of Chicago's National Opinion Research Center.

Almost one-third of the families surveyed (31.6%) reported annual spending of $300 or more for all personal health services, such as physicians' and dentists' charges, hospital care, drugs, private-duty nursing, eyeglasses, and appliances. In this high-spending group, 47% spent between $300 and $499, 38% between $500 and $999, and the remaining 15% $1000 or over.

The entire group of high-spending families accounted for about three-fourths of all private expenditures on health, $12 billion of the

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MEDICAL NEWS *in brief*

(Continued from page 38)

$16.2 billion spent by the American public for this purpose in the survey year of 1957-58.

The incomes of these high-spending families were usually above average. For example, only 18% of the families spending $1000 or over for health services had annual earnings of less than $3500, against a comparable 34% of all families surveyed.

High-spending families were larger than average in size. Whereas 44% of all families consisted of two persons or less, only 31% of the $1000-and-over group were in this category.

Those who spent highly for health care required considerably more physicians' services (particularly surgical) and hospital care than average. Among all families the average annual expenditure on physicians and hospital care came to $98 and $68, respectively, while the comparable figures for all high spenders ($300 or more on all health items) were $231 and $195. Surgical payments alone averaged $19 for all families and $57 for the $300-and-over group.

Voluntary health insurance coverage was especially prevalent among families spending $1000 or more for health care; 88% of these families had such insurance, against 69% of all families. The insured $1000-and-over families had an unusually high proportion of their total expenses covered by their insurance, 35% against only 24% for all insured families.

It was observed that voluntary health insurance was originally devised to cover primarily costs of hospital care and surgery and that this emphasis on hospital-surgical coverage is sound, since the relative importance of these two items in the family health bill becomes greater as total health spending increases.—*Progress in Health Services*, Monthly Bulletin of Health Information Foundation, New York, November 1960.

THE MARY PUTNAM JACOBI FELLOWSHIP

The Women's Medical Association of the City of New York offers the Mary Putnam Jacobi Fellowship to a graduate woman physician, American or foreign. The Fellowship of $1000 will begin October 1, 1961, for a period of one year. At the discretion of the Committee, an award of $2000 may be given biannually. The recipient of the Fellowship will be expected to make a report at the end of the fourth month, after which the balance will be awarded, subject to the approval of the Committee. The Fellowship is given for medical research, clinical investigation or postgraduate study in a special field of medicine. The recipient is expected to devote full time to the Fellowship, but exception may be made under special circumstances.

Applications may be obtained from the Chairman of the Committee, Ada Chree Reid, M.D., 118 Riverside Drive, New York 24, New York, and must be returned before March 1, 1961. Successful candidates will be notified not later than May 1, 1961.

PROVINCIAL NEWS

ALBERTA

The first of this year's refresher courses in medicine covered the subject "Recent Advances in Pulmonary Disease". Guest speakers were Dr. Cameron Gray, University of Toronto, and Dr. Reuben Cherniack, University of Manitoba. Several members of the local faculty were on the program as well. Several such courses covering the various branches of medicine in the specialties are held each year. They are under the joint auspices of the C.M.A., Alberta Division, and the University of Alberta Faculty of Medicine.

One element of disaster will tend to be eliminated as a result of measures provided by a new amendment to the Alberta Water Resources Act. These measures are designed to prevent construction around river beds and lakes where the water has receded but where there is a probability that the water will again, in the near or distant future, rise to former levels. Structures already on lands designated as within flood control areas must be removed if reasonable protection from flood damage cannot be provided. Owners have the right of appeal and the right to compensation.

W. B. PARSONS

Dr. W. E. Sigurdson, Edmonton psychiatrist, has been appointed to the staff of the Menninger Foundation, Topeka, Kansas. He will assist in the establishment of a department of law and psychiatry which will conduct research on psychiatric problems in delinquency and criminal behaviour and will also provide seminars for lawyers interested in studying the psychiatric aspects of various legal problems.

ONTARIO

A child guidance clinic is being established in connection with the War Memorial Children's Hospital, London, Ontario. For some time there has been a need for such a clinic to provide service to the younger age group, and the local schools and social agencies are reported to be most enthusiastic about the project. When a community study, conducted by the United Community Services, drew attention to the need for outpatient treatment facilities for emotionally disturbed children, action was taken to set up the clinic.

Diagnostic and treatment services will be offered. Some consultative services will be provided as part of the clinic's community program. Liaison with schools and local agencies is also planned.

Since it is part of the Department of Pediatrics under Professor J. C. Rathbun of the University of Western Ontario, the clinic also plans an active program of teaching, investigation and research, with Dr. J. C. McLeish as clinic director.

In addition to the psychiatrist, the other members of the clinical team include a psychologist, social workers, and secretarial staff. Federal-provincial Mental Health Grant funds for the clinic are being supplemented by the Kiwanis Club and the United Appeal of London to assist further in establishing and equipping the clinic.—*Canada's Mental Health*, November 1960.

Dr. Victor Szyrynski, Professor of Psychotherapy and Associate Professor of Psychiatry, University of Ottawa, attended the Sixth International Congress of Internal Medicine in Basle, Switzerland, where he and Dr. J. Feller, also of Ottawa, presented papers on psychosomatic aspects of cardiovascular diseases and on diabetic motor neuropathy.

Dr. Walter H. Fink, Clinical Professor, Department of Ophthalmology, University of Minnesota, delivered the third University of Toronto Walter W. Wright Lecture in Ophthalmology at the Academy of Medicine, Toronto, on November 18. Dr. Fink spoke on the subject of "The Anatomical Basis for Vertical Muscle Surgery". The Walter W. Wright Lectureship in Ophthalmology was established two years ago in honour of Dr. Walter W. Wright, Professor Emeritus of Ophthalmology, University of Toronto.

QUEBEC

If the provincial government of Quebec does not come out with legislation on hospitalization insurance which will be close to perfection, it will not be for lack of recommendations, suggestions, advice and requests. Indeed, briefs have been submitted by numerous delegations which have included labour (Fédération des travailleurs du Québec, Confédération des syndicats nationaux, Union catholique des cultivateurs, Conseil de la coopération du Québec, Fédération des Unions de familles and the French section of Montreal's Canadian Association of Social Workers) which represents about 1,400,000 citizens, charity organizations (Conseil des œuvres), pharmacists (Society of Hospital Pharmacists of Canada), and interns and medical students (Canadian Association of Medical Students and Interns). It must be pointed out that more than one of these delegations to the Minister of Health recommended administration of the scheme through a commission. However, it has been decided that the Ministry of Health will be in charge.

There have been repeated announcements in the papers to the effect that no increase in taxes will be necessary to finance the project and that the participants will have no premium to pay. Moneys will be forthcoming from existing government income supplemented by grants from Federal sources. It has been estimated that the cost should be about $25,000,000 for the first year, which should later reach $35,000,000 when "external services" (?) will be added. One of the delegations had suggested setting a tax of one dollar per thousand kilowatt-hour of electricity consumed, but this suggestion seems unlikely to be accepted, as such a tax could discourage new industries from settling in Quebec.

Bits and pieces of information are trickling into the press each week. Thus it was learned that in the case of patients living on the outskirts of the province who may have to be hospitalized in adjacent provinces or states for reasons of convenience or through force of circumstances rather than submit to a long and perhaps hazardous trip into the hinterland, the law will provide for coverage even though applied to institutions located outside of Quebec.

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Overutilization of hospital facilities is already a source of concern in government circles. As a deterrent to such a threat, the Minister of Health is relying on the physicians' professional conscience to prevent them from keeping patients in hospital any longer than they absolutely have to. For fraudulent utilization the law provides a fee not exceeding $500 and incarceration of six months or less.

One of the numerous memoranda presented to the Minister of Health included the suggestion that the services of pathologists, radiologists and psychiatrists be covered in the scheme of hospitalization insurance. The Hon. Mr. Couturier flatly refused on grounds that medical services were quite outside of the cost of hospitalization. He openly came out against salaries for physicians' services, thus upholding the principle of fee for service.

Under the leadership of Reverend Father H. L. Bertrand, the Comité des hôpitaux du Québec has launched a job analysis and evaluation project of all the various types of hospital employment for the purpose of determining their relative importance. This undertaking is expected to involve three years of continuous research and to cost about half a million dollars. The invaluable advantages that will accrue from such research in the field of hospital administration are quite obvious.

This same committee has recently established that the turnover of hospital personnel in the province of Quebec is not as high as one is often led to believe. Factors which contribute to the stability of a hospital staff are size (personnel in hospital larger than 200 beds is more stable than in smaller ones), specialization (less turnover in specialized than in general hospitals) and age (the older hospitals seem to retain their staff better than the more recent ones). It was also noted that 72% of the employees are women.

La pierre angulaire de l'hôpital général La Salle a été posée le 4 novembre dernier après bénédiction par l'abbé J. Legault, curé de Saint-Télesphore. Cette nouvelle institution comprendra 130 lits, 30 berceaux et quatre salles d'opération. Le président de l'hôpital, le Dr Maurice Lacharité, est également maire de la municipalité de La Salle.

Dans le domaine des hôpitaux signalons que les travaux en cours à l'hôpital général Fleury (Montréal) vont bon train et que ce nouvel édifice de douze étages qui contiendra 300 lits présente une innovation dans le domaine de la construction. En effet la chaufferie et ses lourdes chaudières seront situées au dernier étage directement sous le toit. Les architectes en sont arrivés à cette solution en considération de l'espace restreint dont ils disposent au sous-sol où l'on abrite habituellement cette machinerie.

Le docteur Robert Fraser, président du sous-comité des assurances de la Division du Québec, a fait part au comité exécutif lors de la réunion du 7 novembre d'un projet d'assurance-infirmité pour les membres de l'A.M.C. Ce projet s'avère fort intéressant et les membres de la division seront en mesure de réaliser des économies importantes si ce projet peut être mis en vigueur. Au cours de cette même réunion, le docteur G. Halpenny, futur président de l'Association, a fait rapport des préparatifs du prochain congrès annuel. Tout laisse prévoir qu'à l'instar du dernier congrès tenu en province de Québec (1956) les congressistes conserveront un souvenir ému de la réunion de Montréal en juin prochain.

Samedi le 22 octobre le district No 3 comprenant la région de Sherbrooke se réunissait sous la présidence du Dr Emile Bruneau. L'assemblée comprenait environ 150 personnes soit quelque 75 médecins accompagnés de leurs femmes. Après dîner, pendant que ces dames assistaient à la projection d'un film, nos collègues écoutèrent Monsieur B. E. Freamo, secrétaire adjoint de l'Association à Toronto, leur adresser la parole sur l'économie médicale et l'importance que lui confèrent les évènements en cours. Cette soirée fut un succès que la division du Québec aimerait voir se répéter dans plusiers autres districts.

David Bier, Montreal

Dr Renaud Lemieux, président du conseil d'administration de la Division du Québec, remettant au Dr Couturier le diplôme de membre honoraire du conseil exécutif de la Division en présence du Dr Normand-J. Belliveau, secrétaire honoraire.

La veille de ce jour, c'est-à-dire vendredi le 21 octobre, plusiers membres du conseil d'administration de la Division s'étaient réunis au Club St-Denis pour offrir au ministre de la Santé, l'Honorable Alphonse Couturier, son diplôme de membre honoraire du conseil exécutif. En plus du ministre et de son secrétaire étaient présents les docteurs R. Lemieux, S. LeBlond, N.-J. Belliveau, J. F. Meakins, J. Primrose, R. DuBerger ainsi que M. J.-M. Denault.

On October 21 several members of the executive of the Quebec Division of the C.M.A. met at the Club St-Denis in Montreal for the purpose of presenting a certificate of honorary membership to the Hon. Alphonse Couturier, provincial Minister of Health. Besides the guest of honour, the following were present: Dr. R. Lemieux, Dr. S. LeBlond, Dr. N.-J. Belliveau, Dr. J. F. Meakins, Dr. J. Primrose, Dr. R. DuBerger and M. J.-M. Denault.

M. R. DUFRESNE

Dr. W. Hoepping of Essen, West Germany, was a guest of the Ophthalmology Department of the Royal Victoria Hospital, Montreal, on November 1, 2 and 3, and gave a series of lectures and demonstrations on the Zeiss Light Coagulator, which was recently installed in this hospital. The use of the Light Coagulator is a new method of treating a number of serious eye diseases, including detachment of the retina, intra-ocular tumours and recurrent intra-ocular hemorrhages, and has been developed in the Clinic with which Dr. Hoepping is associated.

JOHN C. LOCKE

Reduced risk of hemorrhage in anticoagulant therapy

... the contribution of "DANILONE"

"The greatest deterrent to the use of anticoagulant therapy has been the fear of hemorrhage."[1] Today, however, the likelihood of severe hemorrhage has become very small,[2] and even long-term use of anticoagulants has become widely accepted as a safe procedure.[3] Simultaneous expansion of clinical experience and laboratory facilities has improved the quality of control, and the effective antidote, vitamin K_1, "has added greatly to the safety of anticoagulant therapy."[4] Friedberg[2] reports that "major hemorrhage is rare when the contra-indications to the use of anticoagulants have been observed and the drug administered by one experienced in its use, and with continuous, competent laboratory control." To this should be added intelligent patient cooperation.

Olwin and Paul[5] have observed that use of an anticoagulant such as phenylindanedione ("DANILONE") minimizes the risk of hemorrhage. Its unique timing and consistency of action make this drug much easier to control than other anticoagulants.[6] Rapid prothrombin recovery — usually within 24 to 48 hours after withdrawal of medication — facilitates adjustment of "DANILONE" dosage to meet changing conditions. Such bleeding as may occur tends to be "the slow variety and never a serious hemorrhage per se."[7]

"DANILONE" is also safer because its action is *predictable*. A consistent effect is generally achieved with a relatively constant maintenance dose.[8] Extensive experience has confirmed Blaustein's prediction that the advantages of phenylindanedione provide a "safety factor which will greatly minimize hazards in its use."[9]

1. Manchester, B.: Ann. Int. Med. **47**:1202, 1957. 2. Friedberg, C. K.: New York J. Med. **58**:877, 1958. 3. Olwin, J. H. and Koppel, J. L.: A.M.A. Arch. Int. Med. **100**:842, 1957. 4. Wright, I. S.: J.A.M.A. **163**:918, 1957. 5. Olwin, J. H. and Paul, O.: Surg. Gynec. & Obst. **105**:61, 1957. 6. Oliver, M. F.: Brit. M. J. **1**:1176, 1959. 7. Sise, H. S., Moloney, W. C. and Guttas, C. G.: Am. Heart J. **53**:132, 1957. 8. McNichol, L. J., Finger, J. and Bazil, G.: J. Michigan M. Soc. **56**:1559, 1957. 9. Blaustein, A.: M. Times **81**:605, 1953. 10. Beamish, R. E. and Carter, S. A.: Canad. M.A.J. **74**:39, 1956.

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ABSTRACTS

MEDICINE

Sjögren's Syndrome. 1. Serologic Reactions in Patients with Sjögren's Syndrome with and without Rheumatoid Arthritis.

K. J. BLOCH, M. J. WOHL, I. I. SHIP, R. B. OGLESBY, AND J. J. BUNIM: *Arthritis & Rheumat.*, 3: 287, 1960.

The diagnosis of Sjögren's syndrome is usually based on the triad of keratoconjunctivitis sicca, xerostomia and rheumatoid arthritis but may be diagnosed with two of the three criteria. In this article the authors describe 21 patients with Sjögren's syndrome, eight of whom had rheumatoid arthritis, three had suspicious R.A., two scleroderma and eight the syndrome unassociated with joint disease. In all patients hypergammaglobulinemia was observed, and in all but one a positive bentonite flocculation and sheep cell agglutination test was obtained in high titre. It was also observed that some of the patients with the syndrome were found to have antibodies to human thyroglobulin. The authors remark on the unusually active immunologic response in this disease. On the basis of a similarity in the pathological picture between this and Hashimoto's disease and the similarity in antibodies present, they speculate as to the parallelism between these conditions. P. S. ROSEN

Fatal Pancytopenia Following Treatment of Polycythemia Vera with Myleran.

P. G. FRICK: *Schweiz. med. Wchnschr.*, 90: 1035, 1960 (German).

Although mainly used during the past ten years in the treatment of chronic myeloid leukemia, Myleran has occasionally been used as a cystostatic agent in the treatment of patients with polycythemia vera. Transitory leukopenia and moderate pancytopenia have been previously reported in two patients of a group of 18 treated with Myleran.

The present paper describes the occurrence of fatal pancytopenia in two patients treated for polycythemia with Myleran. The first patient was 33 years of age in 1940 when his polycythemia was first diagnosed. Treatment consisted of venesection every two months until 1958. At that time his red blood count was 7,400,000 per c.mm., the white blood count was 34,000 per c.mm. and platelets numbered 840,000 per c.mm. From July 1958 to March 1959 this patient received 6 mg. Myleran daily, and at the end of that period his hemoglobin was 88%, his red cell count 4,900,000 and his white cell count 4800 per c.mm. The dose of Myleran was reduced to 4 mg. daily, but two months later his hemoglobin was 38%, with a red cell count of 1,800,000 per c.mm., a white cell count of 2500 and a platelet count of 36,000 per c.mm. In spite of 18 transfusions over the following 75 days, together with the administration of prednisone, and symptomatic treatment for infection and heart failure, the patient died three months later of respiratory failure. In the case of the second patient, the drug was given in doses of 6 mg. daily for four months, at the end of which period his hemoglobin was still 105% and his red blood count 5,120,000 per c.mm. Because the white blood count subsequently dropped to 4200, the dose of Myleran was reduced to 4 mg. daily and this drug was stopped altogether a month later because of a continued fall of hemoglobin and white blood count. A month later the hemoglobin was down to 50% and the white blood count to 2300 per c.mm. There was enlargement of the liver and multiple petechiae on both legs. Treatment was of no avail and the patient died some two months later.

The use of Myleran in polycythemia is fraught with danger because of the unpredictability of its side effects and the risk of pancytopenia. W. GROBIN

Changes of Proteins, Lipoproteins and Glucoproteins in the Blood of Patients with Diabetes Mellitus.

W. B. SHEIKMAN: *Klinicheskaya Meditsina*, 38: 36, 1960 (Russian).

Investigation of 100 patients with diabetes mellitus revealed the following changes in the protein, lipoprotein and glucoprotein levels of the blood. In uncomplicated diabetes there was an increase of alpha-2 globulin, beta lipoprotein and alpha-2 glucoprotein. Diabetics with pronounced atherosclerosis showed considerable hypoalbuminemia, increase of the globulin fractions, particularly of alpha-2 and beta globulin, as well as a marked increase of beta lipoprotein and alpha-2 glucoprotein. In uncomplicated diabetes with atherosclerosis the total protein content of the blood was within normal limits.

When diabetes was controlled by means of diet, insulin and oral antidiabetic agents, the serum protein fractions reverted to normal or near normal in many patients. In 19 of 31 patients with marked atherosclerotic changes, the use of sulfonamide drugs for control of diabetes did not result in such reversion of serum protein fractions toward normal.

The study of lipoproteins and glucoproteins in diabetic patients may be of diagnostic value in determining the degree of vascular involvement and could serve as an index for prognostic evaluation and of the degree of therapeutic control of their disease.

W. GROBIN

The Carotid Sphygmogram in Aortic Coarctation.

P.-W. DUCHOSAL AND R. FEUARDENT: *Schweiz. med. Wchnschr.*, 90: 875, 1960 (French).

The sphygmograph used by the authors has been described by them in previous publications. It has a sensitivity reaching 7 cm. of deflection for 1 cm. of water, and a response to frequencies over 70 cycles per second.

Twenty-four patients with coarctation of the aorta were studied, of whom 13 underwent operation and were afterwards restudied. Careful analysis of the sphygmograms of the carotid artery were presented, which showed specific characteristics in the younger age group (13 to 20 years) of patients with aortic coarctation. These specific changes disappeared and normal sphygmograms were obtained following resection of the coarctation. In cases in which the coarctation was not successfully corrected, the sphygmogram failed to return to normal following operation. Carotid sphygmograms are of diagnostic value, particularly in young children and adolescents with possible coarctation of the aorta. W. GROBIN

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(Continued from page 10)

Allergy and Myocardium.

G. BICKEL: *Schweiz. med. Wchnschr.*, 90: 912, 1960 (French).

Studies of allergic manifestations and of their effect on the electrocardiographic tracings of some 60 animals and of some 100 patients resulted in the following observations: Anaphylactic shock in a rabbit sensitized to horse serum is regularly followed by electrocardiographic changes which involve conduction, excitability and coronary blood supply. These electrocardiographic changes do not necessarily follow only severe allergic manifestations, but may be seen in animals even after experiments which do not produce any other obvious disturbances. Repeated injections at intervals of 10 to 15 days of the serum which originally produced anaphylactic shock were followed usually by decreasing myocardial reaction. This resembles certain phenomena of adaptation to allergens which are observed fairly frequently in clinical practice. The electrocardiographic changes accompanying anaphylactic shock are complex, and result partly from direct coronary artery constriction and increased vascular permeability, and partly from anoxemia following pulmonary artery constriction. The electrocardiogram of anaphylactic shock bears a striking resemblance to that of acute cor pulmonale. In humans, systematic study of electrocardiograms showed that the myocardium participated frequently in allergic reactions, and that this was particularly common in serum and drug sensitivity reactions, especially if these were accompanied by exanthemata or generalized urticaria. Here too, as in the foregoing experimental studies, the changes were those of disturbances of conductivity, excitability and blood supply to the myocardium. If the allergic involvement of the myocardium is particularly severe, acute cor pulmonale, myocardial infarction or congestive cardiac failure may develop. The pericardium and the endocardium are damaged less frequently than the myocardium, and their involvement cannot be demonstrated at present with any degree of certainty. It is possible that repeated allergic attacks on the myocardium may result in anatomic changes which lead to chronic myocarditis and scarring, hitherto considered "idiopathic". W. GROBIN

Biosynthesis of Porphyrins in the Human Leukocyte.

A. VANNOTTI AND B. CULLITY: *Schweiz. med. Wchnschr.*, 90: 955, 1960 (French).

Enzyme systems which regulate the biosynthesis of porphyrins have been demonstrated in living cells. Incubation of human leukocytes with delta-aminolevulinic acid produces porphobilinogen at a constant rate. This is about 50% higher in the polymorphonuclear leukocytes than in lymphocytes. During pregnancy, infectious states, and during treatment with pyrogens, a marked diminution of this rate of synthesis of porphobilinogen is observed. This could be regarded as an equivalent or a modification of leukocyte response to "stress". When leukocytes from patients with acute myeloblastic leukemia are incubated, not only porphobilinogen but also porphyrin is produced. This indicates that the synthesis of the porphyrin ring is arrested in mature cells while that of its precursor, porphobilinogen, continues. W. GROBIN

SURGERY

Radical Neck Dissection for Cervical Lymph Node Metastases of Intraoral Carcinoma.

J. D. PALMER AND S. J. MARTIN: *A.M.A. Arch. Surg.*, 81: 233, 1960.

Because of the continuing differences of opinion regarding the indications for neck dissection in the treatment of oral carcinoma, a study of 68 patients was undertaken at the Montreal General Hospital. All had had radical neck dissections, 36 in conjunction with removal of the primary tumour and 32 after the primary lesion was considered controlled. The minimum duration of follow-up was three years. The primary lesions were in the tongue, floor of mouth, alveolar process or soft palate.

Follow-up showed that the prognosis is generally poor in oral carcinoma with positive neck nodes. Local recurrences were very frequent in those patients with positive nodes. Recurrences were found after all types of treatment: radical *en bloc* removal, local excision or irradiation. Cervical lymph nodes do not constitute a separate problem but provide an important indication of success in eradication of the primary carcinoma. All these patients had a moderately advanced disease.

Smaller and more superficial intraoral carcinoma may be adequately treated by less radical surgical excisions. More advanced cases require a vigorous surgical attack to remove all visible tumour and palpable lymph nodes if the functional result is to be compatible with patient health and happiness. A complete radical neck dissection should be done only when neck nodes are or become palpable. A biopsy of the primary site should be performed if and when new cervical nodes appear.

The overall survival rate in this series was 29.4%, 50% where nodes were negative and 16.6% where they were positive. BURNS PLEWES

Dupuytren's Contracture.

A. STEIN, M. K. H. WANG, W. B. MACOMBER, R. RAJPAL AND A. HEFFERNAN: *Ann. Surg.*, 151: 577, 1960.

A morphological evaluation of the pathogenesis of Dupuytren's contracture suggests that the lesion is rudimentary muscle which has undergone fibrosis and hyalinization. This conclusion was reached from a study of 98 cases in which the tissue excised from the hands was studied using a number of special staining methods. In a random group of cases, 78% showed bundles of compact cellular spindle cells which coloured like muscle. In a control series of biopsies from the hands of cadavers without clinical Dupuytren's contracture, 47% had slips of spindle cells which stained like muscle.

Others have suggested that Dupuytren's contracture was related to an atavistic phenomenon in which muscle remnants were present in the palmar fascia, remnants of the flexor brevis superficialis muscle. There is also considerable support for the role of heredity in Dupuytren's contracture. Such predisposed individuals having slips of muscle in the palmar fascia are liable to develop Dupuytren's contracture if the hand is used excessively, or following local trauma or disease, the degree depending on the location and volume of persistent muscle. BURNS PLEWES

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The Management of Acute Intestinal Obstruction.
P. T. SAVAGE: *Brit. J. Surg.*, 47: 643, 1960.

The mortality from acute intestinal obstruction remains high. It has not been reduced as has the mortality from such other acute surgical emergencies as acute appendicitis, perforated ulcer, and strangulated hernia. A critical review of 170 cases (excluding those with strangulated hernia, mesenteric thrombosis and aortic thrombosis) showed an overall mortality of 15%. In those with small intestinal obstruction the mortality was 13%; for patients under 70 years of age it was 7%; for those over 70 years, 32%. Large bowel obstruction is a disease of the elderly. The mortality from this cause was 50% for patients over 80 years of age, but only 9% for those below the age of 80.

The difficulties in diagnosis are discussed, including the "false negative" radiographs which may be obtained where there is little or no intestinal gas. It is especially difficult to be sure whether the patient has a simple or a strangulated loop obstruction and it is dangerous therefore to rely on the Miller-Abbott tube for decompression.

Immediate operation is advocated as soon as fluid and electrolyte balance and blood loss are corrected. Decompression at laparotomy is advised, using a 19" long suction tube (14" working length over which the whole of the small intestine can be threaded). Emptying the small bowel in this way greatly facilitates the problem of closing the abdomen, lessens postoperative vomiting and aspiration, and ileus.

In this series, resection and end-to-end anastomosis carried no higher mortality than simple division of adhesions or enteroenterostomy. Decompression of the proximal intestine makes one-stage resection safe in cases of obstruction due to intussusception or carcinoma of the right side of the large bowel. Proper dissection of the left colon for cancer necessitates high ligation of the inferior mesenteric artery and therefore a low, open anastomosis in the pelvis. Such a procedure is unsafe when obstruction is present, even if decompression is carried out. If there are non-resectable secondaries, however, a less-than-radical resection of the left colon can be safely done to relieve the obstruction and remove the primary tumour.

Immediate resection of a volvulus of the sigmoid colon is advocated. Decompression is obtained in such cases by passing a stomach tube per anum.

BURNS PLEWES

Regional Chemotherapy for Cancer.
J. S. STEHLIN, JR., R. L. CLARK, JR., E. C. WHITE, J. L. SMITH, JR., A. C. GRIFFIN, R. H. JESSE, JR. AND J. E. HEALEY, JR.: *Ann. Surg.*, 151: 605, 1960.

Since 1957, perfusions for the treatment of cancer have been performed 116 times at the University of Texas. Most have been for malignant melanoma, and the alkylating agents, phenylalanine mustard and nitrogen mustard, were used. The technique involved the use of two sigmamotor pumps, a disposable bubble oxygenator, heparin and, if possible, a tourniquet. Often, a dissection of the lymph nodes of the axilla or groin was performed at the same operation. A tracheostomy was always done when carotid perfusion was undertaken for tumours of the oral, nasal and pharyngeal cavities.

The dosage of antitumour drugs is limited by local normal tissue tolerance and the extent of cross circulation between the region perfused and the rest of the body, i.e. the leakage factor. Local petechiae, erythema, mild edema, and tanning are considered of little clinical importance. The leakage factor is measured by studies using radioactive iodinated serum albumin. The bone marrow does not tolerate the toxic effects a second time and studies regarding the use of the two drugs at the same time were made. One patient died from depression of the bone marrow and several suffered temporary loss of body hair. Anemia from red cell injury frequently appeared in 48 to 72 hours. Malaise and anorexia, apparently due to necrosis of the tumour, were encountered. Blistering and gangrene in an extremity may lead to emergency amputation.

The results in specific lesions are discussed and the impression is given that melanomas are most sensitive to this treatment, while squamous cell carcinomas are the least sensitive.

While these chemotherapeutic agents are dangerous, and perfusion may also be dangerous and perhaps cause the tumour to spread, this method may make an amputation, excision or more distal amputation possible. It has not been established that large masses of cancerous growth can be destroyed by perfusion without seriously damaging normal tissues. Infusions of autologous bone marrow are being used to see if this procedure will permit the use of increased doses of the antitumour drug.

Whether such local isolation-perfusion will prove worth while remains to be seen. It is not recommended at the present time as a standard therapeutic weapon.

BURNS PLEWES

Omphalocele.
V. PALTIA: *Acta chir. scandinav.*, 119: 195, 1960.

At Helsingfors University Hospital, primary operation for omphalocele has been abandoned in favour of the conservative therapy described by Grob. This consists of prophylactic antibiotics for two months, and daily painting of the surface of the omphalocele and the surrounding skin with 1 to 2% mercurochrome solution. Exposure of the omphalocele is carried out while the infant's hands and feet are immobilized. Epithelialization takes approximately three months. The gap in the abdominal wall which then remains is much easier to repair radically when the child is approximately one year old. Photographs are shown of one child. Of the five infants treated, one died of chronic ileus.

T. A. MCLENNAN

Ulcer Treatment with Gastrin Inhibitor.
B. LUNDERQUIST: *Acta chir. scandinav.*, 119: 184, 1960.

Administration of local anesthetics by mouth produces achlorhydria even with the administration of gastrin liberators. Because of this, a tetracaine derivative called Nolitrin was studied with regard to its effects on the stomach of Shay rats. It was found that after ligature of pylorus (an operation usually followed by gastric ulceration) Nolitrin by mouth prevented this complication in approximately 90%. In those rats with pyloric ligation but not given Nolitrin, 33 out of 50 rats developed ulceration and the others had gastritis. Thirty-six outpatients with ulcers or gastritis who received this treatment became asymptomatic within three days and ulceration healed in all cases within three weeks.

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The Risk of Emergency Surgery for Acute Cholecystitis.
H. K. WRIGHT AND W. D. HOLDEN: *A.M.A. Arch. Surg.*, 81: 341, 1960.

At the University Hospitals of Cleveland it is a general principle that operations are not performed on patients with acute cholecystitis unless their progress on strict medical therapy is unfavourable. Over an eight-year period, 123 emergency operations were performed for acute cholecystitis; one-third of these were cholecystostomies and the remainder were cholecystectomies. Over half the operations were carried out within one day of the onset of symptoms, but in 24% the disease had been present four days or more when operation was performed. The average age of those subjected to cholecystostomy was 69 years. The overall operative mortality of 7% was essentially the same for both operations, almost all deaths occurring among those operated upon more than four days after onset of their disease. The complication rate was 17%. Myocardial infarction, acute pancreatitis, renal complications and pneumonia were the causes of death. Among the numerous complications were: evisceration, intestinal obstruction, subphrenic abscess and pulmonary embolism. At operation, gallbladder perforation was found in seven cases.

Emergency gallbladder surgery in the early stages of acute cholecystitis carries no greater risk than gallbladder surgery in general. The risk of emergency surgery four or more days after the onset of this disease, however, appears to be so great as to outweigh its advantages and to contraindicate operation in these circumstances. BURNS PLEWES

The Treatment of Cirrhosis of the Liver by Ligature of a Hepatic Duct.
L. LEGER, M. CACHIN AND P. DÉTRIE: *J. chir.*, 80: 33, 1960 (French).

The operation of Schalm is described. Ligature of one hepatic duct causes atrophy of the lobe of the liver on that side. The remaining lobe undergoes compensatory hyperplasia. Six cases operated upon by Schalm are reviewed and four new cases are reported. The indications for this operation are the various complications of cirrhosis: ascites, melena, hematemesis and disordered liver function. The operative results have not been good and the indications for this operation, rather than for a portal-systemic shunt, are not as yet well defined. Of the 10 patients subjected to this surgical procedure, five are dead and four have had good results. T. A. MCLENNAN

Diagnostic Value of Intracardiac Phonocardiography in Some Complicated Cardiac Problems.
G. A. FERUGLIO, R. W. GUNTON, A. SREENIVASAN AND R. O. HEIMBECKER: *Ann. Surg.*, 152: 29, 1960.

Using a sound catheter, which has a tip containing a cylinder of activated barium titanate, the differential diagnosis of certain congenital and acquired heart lesions can be clarified. It is a simple technique to carry out and of particular value in the diagnosis of ventricular septal defects when other findings are equivocal. Similarly, intracardiac phonocardiography may establish the diagnosis of mitral stenosis associated with atrial septal defect. Three cases from the Toronto General Hospital illustrate the value of this method of investigation. BURNS PLEWES

Prophylaxis and Treatment of Thromboembolism with Sintron and Indaliton in Surgery.
J. J. SCHLEGEL AND C. MONTIGEL: *Schweiz. med. Wchnschr.*, 90: 990, 1960 (German).

In addition to early ambulation, gymnastics and massage, control of factors influencing blood coagulation constitutes an important part of the prophylaxis and treatment of thromboembolism in surgical patients. Successful use of anticoagulants requires careful planning and timing of administration and continued control of dosage of the agents employed by repeated laboratory tests. Control of the prothrombin time before and after operation using two different thromboplastins in the test, and determination of the isolated factor X, showed that only in commissurotomies for mitral stenosis and in lung operations was there any significant difference between preoperative and postoperative values of these tests. The best time to begin anticoagulant treatment is four days postoperatively. Full protection against thrombosis is achieved by the seventh to eighth postoperative day. Embolism occurred only when factor X and the lung thromboplastin values were above the desired therapeutic levels; bleeding occurred only when factor X values were below the optimum therapeutic level. Extensive experience has indicated that the therapeutic range for coagulation values with thrombokinase (Geigy) is 18% to 30% of the normal and the corresponding range for factor X is 40% to 60%, whilst that obtained with brain thromboplastin is 10% to 20%.

Control of coagulation time with thrombokinase is usually sufficient, but experience has shown that the additional determination of factor X increases the safety of anticoagulation treatment both with regard to embolism and to bleeding. The determination of factor X alone is wrought with too many uncertainties and is not suitable for gauging the dose of anticoagulant.

The reported results are based on experience with 545 patients who received anticoagulants both as a routine prophylactic measure and as a therapeutic and prophylactic agent for patients with venous thrombosis and pulmonary embolism. The complications are discussed in detail and the reasons for failure of prevention of embolism and hemorrhage are suggested.

W. GROBIN

OBSTETRICS AND GYNECOLOGY

Information for the Rh-Negative Pregnant Woman.
S. BENDER: *J. Obst. & Gynaec. Brit. Emp.*, 67: 678, 1960.

Facts for Rh-negative women: (1) Rh negative is a *normal* blood group; about 15% of all people belong to it. (2) It does *not* cause any complications for the pregnant woman, herself. (3) The baby *rarely* is born anemic or develops jaundice (yellow) after birth. (4) The *first* baby is very rarely affected. (5) In every pregnancy an Rh-negative woman must have a blood test about six weeks before labour is due, for this test will show whether or not the baby is likely to be affected. (6) If the test is positive, the baby must be born in hospital where everything is ready to treat the baby (by blood transfusion) in the few cases where this is necessary. Treatment nearly always ensures a normal, healthy baby. (7) If the husband is also Rh negative, the baby is never affected.

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Megaloblastic Erythropoiesis in Pregnancy.
A. MACKENZIE AND J. ABBOTT: *Brit. M. J.*, 2: 1114, 1960.

During recent years a great deal of attention has been directed toward the anemias of pregnancy. In one British antenatal clinic which caters for about 1800 patients yearly, 25% of patients had hemoglobin levels below 70% at the 32nd week of pregnancy. Undoubtedly most cases of anemia in late pregnancy are due to iron deficiency but there is a growing opinion that many cases of anemia are of megaloblastic type. An apparent increase in the reported frequency of megaloblastic anemia of pregnancy is probably due to increased hematological supervision of expectant mothers at antenatal clinics. Formerly a clinical state of severe illness in pregnancy was described, whereas more recent studies are based on hemoglobin levels irrespective of symptoms and clinical condition of the patients.

Convincing evidence has been produced indicating that megaloblastic anemia of pregnancy is due to a deficiency caused by poor absorption of folic acid by the mother or by insufficient dietary supply to meet the needs of mother and fetus. As in any deficiency disease, there must be many cases in which the lack is moderate or slight. Goodall has described patients with moderate anemia of pregnancy without megaloblastic erythropoiesis who responded only to folic acid. Conversely patients are also encountered with megaloblastic marrow without anemia. In an attempt to find the incidence of megaloblastic erythropoiesis in a maternity unit, routine study of blood smears was carried out on antenatal patients with anemia and on all patients admitted to the maternity hospital. Marrow biopsies were carried out on all patients with abnormal blood films other than those with hypochromic anemia. The incidence of megaloblastic erythropoiesis was found to be 1 case in 26.6 deliveries and 1 case in 4.2 twin deliveries. The condition frequently existed without significant anemia.

Superficial Thrombophlebitis Treated with Phenylbutazone.
R. DE SOLDENHOFF AND A. H. M. ROSS: *Practitioner*, 185: 321, 1960.

Between January 1948 and December 1958 there were 603 cases of venous thrombosis associated with 21,804 obstetrical deliveries at an Ayrshire hospital, an incidence of 2.8% of the total deliveries. The majority occurred in the postnatal period and were superficial in type. The incidence of fatal pulmonary embolism in this hospital for the period noted above was 0.005% (1 in 18,000). Clinical experience has shown that major pulmonary embolism is very rare following superficial thrombophlebitis. However, the usual methods of treatment generally result in prolonged bed occupancy which may aggravate already critical shortages of obstetrical beds in many communities. For this reason the authors investigated the efficacy of phenylbutazone as a therapeutic agent for 169 patients with thrombophlebitis, 157 of whom were in the postnatal period; in all but two the affected veins were superficial radicles of the long and short saphenous systems. As soon as this diagnosis was made, 200 mg. of phenylbutazone was administered orally three times daily for three days, after which the dose was reduced to 100 mg. thrice daily for a maximum of two days; the total dose for the five-day course was 2.4 g. The results of this form of treatment were considered highly satisfactory and superior to other therapeutic measures previously used. Desirable effects included prompt relief of pain, rapid resolution of inflammation, early ambulation, shortened period of treatment and early return to the home, low cost and lack of any apparent adverse effect on subsequent chronic venous changes in the leg.

The Diagnosis of Acute Torsion of the Pregnant Uterus.
P. R. MITCHELL AND W. J. GARRETT: *J. Obst. & Gynaec. Brit. Emp.*, 67: 654, 1960.

A case of torsion of the pregnant uterus has been described and the literature relating to the subject has been studied with a view to simplifying the diagnosis of this rare though frequently fatal condition. Cases of secondary uterine torsion (those associated with old surgical adhesions) do not have a characteristic clinical picture but rather mimic the syndromes seen with primary uterine torsion. Primary uterine torsion presents in three quite different ways. (1) When lesions leading to asymmetry of the uterus such as fibroids, congenital malformations or interstitial pregnancy are associated with torsion of the uterus the symptoms characteristically appear in the *first* or *second* trimesters. There is commonly a history of recurrent subacute attacks of abdominal pain culminating in one or more especially severe attacks which bring the patient to the surgeon. Most patients in this group are primigravidae and if a fibroid or congenital malformation is known to exist, the diagnosis is less difficult. A double vagina may be present. Bleeding, as a symptom, is unusual. (2) Fulminating cases of uterine torsion are characterized by the sudden onset in the *third* trimester of severe pain, shock and prostration. The patient is usually a multipara with a flabby pendulous abdomen, and frequently the fetus lies transversely. The uterus, apart from the torsion, generally appears normal and fibroids or other tumours are characteristically absent. If operation is at all delayed, early death is common. (3) In labour, torsion of the uterus may occur from any cause. It manifests itself as obstructed labour of obscure origin and is usually diagnosed at Cesarean section.

A note is given on treatment. ROSS MITCHELL

PATHOLOGY

Cardiac Lesions in Rheumatoid Arthritis.
H. R. GOEHRS, A. H. BAGGENSTOSS AND C. H. SLOCUMB: *Arthritis & Rheumat.*, 3: 298, 1960.

The hearts of 36 patients with rheumatoid arthritis and rheumatoid spondylitis were examined histologically. Pericarditis in various forms was noted in 15 patients (42%). In some cases it was old, adhesive and fibrous while in others it was fresh and widespread. Valvular changes were next most frequent (15 out of 36 hearts) with aortic sclerosis noted in 11, mitral sclerosis in 10 and tricuspid sclerosis in two. From this it was felt that subclinical rheumatic fever occurred in a significant number of patients or that rheumatic fever and rheumatoid arthritis produced a similar type of cardiac injury. Twenty per cent of the series showed pathological evidence of characteristic rheumatoid granulomata and 70% showed some degree of cardiac hypertrophy, the exact cause of which was in doubt. Four hearts showed both Aschoff bodies and rheumatoid nodules. P. S. ROSEN